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Natural sources as promising future anticancer therapies - A review

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Abstract

Cancer is the second leading cause of death worldwide. The alternative natural therapies are required as they considered to have less toxic side effects compared to current chemotherapy. In the current review Web Science, PubMed, Scopus and Science Direct, were searched to provide information about medicinal plants that have shown anticancer activity against various forms of cancer.

Keywords: Cancer; Natural Products; Plants; Pharmacology

1. Introduction

Cancer is one of the second leading causes of morbidity and mortality globally. The current trend in cancer management requires the use of alternative treatments since the majority of anticancer drugs are known to be costly, with unwanted side effects. Recently, many medicinal plants inhibited proliferation, induced apoptosis, suppressed angiogenesis, inhibited invasiveness and metastasis [1-7]. The current review highlighted the naturally-derived therapies as promising anticancer treatments.

2. Plants with anticancer effects

Cardenolide compounds isolated from the seeds of *Adonis aestivalis* showed activity against HSC-2, HSC-3, HSC-4, and HL-60 cells [8-9]. *Ailanthus altissima* showed activity against HeLa, MCF-7, MDA-MB-231, HepG2 and A549cells guinea pig ear keratinocytes, human glial tumor cell line SF188,Epstein-Barr virus early antigen activation introduced by 12-O-tetradecanoylphorbol-13-acetate in Raji cells, human hepatoma cell lines, human leukemia (Jurkat), thyroid carcinoma (ARO and NPA), and hepatocellular carcinoma (HuH7) cell lines[10-18]. *Alhagi maurorum* possessed anticancer activity against human leukemia cell line (HL-60) [19-20]. *Allium* species exerted anticancer activity against wide range of chemically induced cancers and wide range of tumor cell lines[21-54]. *Althaea officinalis* possessed anticancer effect against tumoral lymphocytes [55-56]. *Althaea rosea* showed cytotoxicity against brine shrimp [55-56]. *Ammannia baccifera* possessed antitumor activity against HeLa cancer cell line [58-59]. *Anagyris foetida* exerted cytotoxic effect against HL-60 and LoVo cell lines [60]. *Anchusa italic* possessed activity against MCF-7, HepG2, WEHI, MDBK and HepG2 cell line [61-63]. *Antirrhinum majus* showed cytotoxic and haemolytic activity against human red blood cells [64-65]. *Apium graveolens* possessed antitumor activity against human DLA, Dalton's lymphoma ascites cell line; L929) and Mouse lung fibroblast [66-67]. *Arctium lappa* showed antiproliferative effects against Caco-2 cells and promyelocytic leukemia (HL60) [68-69]. *Aristolochia maurorum* exerted cytotoxicity on brine shrimp test [70].*Artemisia campestris* possessed cytotoxicity on HT-29 cell lines [71-72]. *Arundo donax* was used incombination with *Spartium junceum* and *Cynodon dactylon* for the treatment of tumors [73-74]. *Asclepias curassavica* showed anticancer effect against human nasopharynx, HepG2 and Raji cell lines [75-78]. *Asparagus officinalis* possessed activity against human A2780, HO-8910, Eca-109, MGC-803, CNE, LTEP-a-2, KB and mouse L1210 tumor cells, also againstHepG2 cells, human leukemia HL-60 cells, breast, colon and pancreatic

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cancers [79-85]. *Astragalus hamosus* exerted antiproliferative effect agaHL-60/Dox, human acute lymphoid leukemia and two breast carcinoma cell lines MCF-7 estrogen receptor (ER) positive and MDA-MB 231 - ER negative [86-90]. *Bauhinia variegate* possessed anticancer effect against Dalton's ascitic lymphomas, skin papilloma, human epithelial larynx cancer, human breast cancer (HBL-100) cells and N- nitrosodiethylamine induced experimental liver tumor in rats[91-95]. *Bellis perennis* showed cytotoxicity in potato disc tumor induction bioassay [96-98]. *Betula alba* possessed anticancer effects against neuroblastoma, rabdomyosarcoma-medulloblastoma, glioma, thyroid, breast, lung, colon carcinoma, leukemia, multiple myeloma, ovarian carcinoma, cervical carcinoma, glioblastoma multiforme, A431 (skin epidermoid carcinoma), A2780 (ovarian carcinoma), HeLa (cervix adenocarcinoma) and MCF7 (breast adenocarcinoma), liver metastatic murine colon 26-L5 carcinoma cells, WI-38 fibroblast cells, VA-13 malignant tumor cells and K562 tumor cell line [99-104]. *Bidens tripartita* exerted antitumor effect against mouse leukemia cells [105-106]. *Brassica rapa* possessed antiproliferative effect against human lung cancer A-549 cell line, Hep-2, AMN-3, HCT-116, MCF-7, HeLa, and MCF cancer cells [107-112]. *Bryonia dioica* exerted anticancer effect against Burkitt's lymphoma BL41 cell lines [113], and *Bryophyllum calycinum* against Ehrlich ascites carcinoma (EAC) [114-115]. *Bryophyllum calycinum* inhibited the occurrence of Ehrlich ascites carcinoma (EAC) [114-115]. *Caccinia crassifolia* showed antitumor activity against MCF7, HepG2, WEHI164 cancer cell lines [116]. *Caesalpinia crista* inhibited the growth of Ehrlich ascites carcinoma, possessed cytotoxicity in brine shrimp lethality test and showed anticancer effect against T47D, DU145, MCF-7 (breast adenocarcinoma), DU145 (prostate carcinoma), C33A (cervical carcinoma) and Vero (African green monkey kidney fibroblast) cells [117-121]. *Calendula officinalis* inhibited the multiplication of L929 and HepG2, colon cancer, leukemia, melanoma, human skin fibroblast (HSF), human breast cancer cells (T47D), leukemias, melanomas, fibrosarcomas and cancers of breast, prostate, cervix, lung, pancreas, colorectal cells (*in vitro*) and Ando-2 melanoma cells *(in vivo*) [122-126]. *Calotropis procera* inhibited the growth of Hep2, Vero cell lines, COLO 320 tumor cells, HL-60, CEM (human leukemia), HCT-8 (human colon cancer), B-16/F10 (murine melanoma) and many other cell lines [127-135]. *Canna indica* showed cytotoxicity in brine shrimp toxicity test [136-137]. *Capparis spinosa* inhibited the multiplication of hepatoma HepG2, breast cancer MCF-7 cells, human epidermoid larynx carcinoma, human cervix uterine epitheloid carcinoma,SGC-7901 cells and Ehrlich Ascites carcinoma [138-144]. *Capsella bursa-pastoris* possessed anticancer effect against Ehrlich tumour in mice, MH134, L1210 mouse tumor cells and HSC-2 human oral cancer cells [145-149]. *Capsicum species* exerted anticancer effect against Hep-G2 cells, oral tumor cell lines (HSC-2, HSG), and TE-13 (esophageal squamous cell carcinoma) cell line [150-154]. *Carthamus tinctorius* possessed antiproliferative effect against SW620,Hep2, MDA-MB-231 breast cancer cell, S180 Sarcoma, LA795 lung cancer in mice and skin tumor induced by 7, 12-dimethylbenz [a]anthracene [155-159]. *Casuarina equisetifolia* showed cytotoxicity in brine shrimp lethality test [10-161] and *Celosia cristata* possessed antiproliferative effect against HeLa, Cos 7, HepG2, SK-Hep1 and LS 174T cell lines [162-163]. *Chenopodium album* induced anticancer activity against estrogen dependent (MCF-7) and estrogen independent (MDA-MB-468) human breast cancer cell lines [164-165]. *Chrozophora tinctoria* possessed cytotoxicity against brine shrimp assay and inhibited the proliferation of mouse skin tumors induced by 7, 12-Dimethylbenze (a) anthracene (DMBA) [166-167]. *Cicer arietinum* possessed anticancer effect against oral cancer cells and MCF-7 breast cancer cell line [169-170]. *Cichorium intybus* showed antitumor activity in Ehrlich ascites carcinoma in mice, dimethylbenz[a]anthracene (DMBA) induced benign breast tumors and against human leukemia HL-60,U-937, melanoma C32, humanprostate cancer PC-3 cells, human breast carcinoma T47D cells and colon cancer RKOcells [172-176]. *Citrullus colocynthis* was active against ER+ MCF-7 andER- MDA-MB-231 human breast cancer cell lines [177-178]. While, *Citrus* species showed antiproliferative effect against human breast carcinoma cell line (MDA-MB-453), human lymphoblastoid B cellline, human pancreatic cancer cells, human larynx, cervix, breast, liver, colon cancer cell lines, and human astrocytoma cancer cells [179-191]. *Clerodendron inerme* possessed anticancer effect against 7, 12- dimethyl Benz (a) anthracene (DMBA) induced skin carcinogenesis in mice and hamster buccal pouch carcinogenesis [192-195]. *Clitoria ternatea* exerted antitumor activity against hormone-dependent breast cancer cell line (MCF-7), non-hormone-dependent breast cancer cell line (MDA-MB-231), human ovary cancer cell line (Caov-3), human cervical cancer cell line (Hela), human liver cancer cell line (HepG2), human foreskin fibroblast cell line (Hs27) and Dalton's lymphoma (DLA) induced in mice [196-200]. *Convolvulus arvensis* showed anticancer effect against human tumor cell line (Hela), lymphoblastic leukemia, Jurkat cells, human Rhabdomyosarcoma(RD) tumor cell line and 7-12-dimethyl benz(a)antheracene (DMBA) induced skin carcinogenesis[201-205]. *Convolvulus scammonia* was active against mice implanted with hepatic cancer cells (hepatic cell H22) and CHO cell line [206-208]. Epidermal carcinoma of nasopharynx cells, human breast cancer cell lines (MDA-MB-231 and MCF-7), melanoma cells (B16F10, SK-MEL-28, and A375), leukemic cell lines U937, HL-60 and myelogenous leukemia cell line K562 [209-214]. *Corchorus capsularis* showed cytotoxicity in brine shrimp test [215-216]. *Coriandrum sativum* possessed anticancer effects against MCF-7, BMK (kidney), KHOS-2405 (bone), WRL-68 (liver) and L5178Y-Rlymphoma cells [217-220]. *Coronilla scorpioides* showed cytotoxicity in brine shrimp and potato disk assays [221-222]. While, *Coronilla varia* possessed growth inhibitory activity against F7 and KB cell lines [223-227]. *Cotoneaster racemiflora* showed cytotoxicity in brine shrimp test [228-229]. HeLa cells, colorectal cancer cell lines (HCT-116, SW-480, and HT-29), carcinomic human alveolar basal epithelial cells, HepG2, human transitional cell carcinoma (TCC), lung cancer cells (A549), ovarian cancer HO-8910 cells, transplanted sarcoma-180 (S-180), Ehrlich ascites carcinoma (EAC) and Dalton's lymphoma ascites (DLA) tumours in mice[230-247]. *Cuminum cyminum* showed anticancer effect against Hela cells,

benzo(α)pyrene [B(α)P]-induced forestomach tumorigenesis,3-methylcholanthrene (MCA)- induced uterine cervix tumorigenesis in mice, B[*a*]P-induced neoplasia and 3'MeDAB induced hepatomas inrats [248-252]. *Cupressus sempervirens* possessed antiproliferative effect on melanotic melanoma C32 cells,renal adenocarcinoma cells and human BPH-stromal cells [253-255]. *Cuscuta planiflora* showed cytotoxicity in brine shrimp test and inhibited the growth ofhuman breast carcinoma (MDA-MB-468), human colorectal adenocarcinoma (HT29) and human uterine cervical carcinoma (Hela) cell lines [256-258]. *Cydonia oblonga* exerted anticancer effect against human HepG2, A549, HeLa cell lines, human kidney and colon cancer cells [259-261]. *Cynodon dactylon* inhibited the growth of Ehrlich ascites carcinoma andascitic lymphoma (ELA) in mice, in addition it possessed cytotoxicity against (COLO 320 DM, MCH-7, AGS, and A549) [262-265]. *Cyperus rotuntdus* showed cytotoxicity in brine shrimp test and inhibited the growth of Ehrlich ascites carcinoma cells, brain tumor cell line, Hela (cervix carcinoma cell line), ovarian cancer (A2780, SKOV3 and OVCAR3), endometrial cancer (Hec1A and Ishikawa) cells and human breast carcinoma MDA-MB-231 cell model[266-270]. *Dactyloctenium aegyptium* showed anticancer effect against human hepatocellular carcinoma cells (HepG-2), colon carcinoma cells (HCT-116), breast carcinoma cells (MCF-7), human lung cancer (A549) and cervical cancer (HeLa) cells [271-273]. *Datura metel* exerted antitumor effect againstA549 (lung), BGC-823 (gastric), K562 (leukemia) cancer cell lines, vero cell line, human lung carcinoma cells (A549), human colorectal adenocarcinoma cells (DLD-1), HepG-2, HeLa and SGC-7901 cell lines [274-278]. *Daucus carota* showed anticancer effect against wide range of cancer cells including lung, skin, breast, glioblastoma cancer cell, skin papilloma, myeloid leukemia (AML) cells, CaCo-2 cells, human lymphoid leukaemia cells, myeloid and lymphoid leukemia cells, human breast adenocarcinoma cells, MDA-MB-231, MCF-7, human colon adenocarcinoma cells (HT-29 and Caco-2) and HepG-2 cell lines [279-291]. *Delphinium brunonianum* inhibited he growth of Vero, MDCK cell lines and hepatoma cell line [292-293]. *Desmostachya bipinnata* showed cytotoxicity in brine shrimp test and anticancer effect against HCT-116 colon cancer cell line, human cervical cancer cell lines (HeLa), human laryngeal epithelial carcinoma cells (HEp-2) and NIH 3T3 [294-297]. *Dianthus caryophyllus* inhibited the proliferation of colon cancer cells [298-299]. *Digitalis* species possessed antiproliferative effects against myeloma cell line RPMI8226/5 and its sublines RPMI8226/ DOX40 and RPMI8226fLR-5, the lymphoma cell lines U-937GTB and U-937Vcr, the small-celllung cancer cell line NCI-H69and its subline NCI-H69AR,there-nal adenocarcinoma cell line ACHN, the leukemia cell line CCRF-CEM and its subline CCRF-CEM/VM- 1, prostate, melanoma, pancreatic, leukaemia, neuroblastoma, and tumors of urinary, respiratory cancer and many other cancers cells[300-322]. *Dodonaea viscose* showed antiproliferative effect against breast carcinoma cell line [323-324]. While, *Lablab purpureus* showed cytotoxicity in brine shrimp test [325-327]. *Echinochloa crus-galli* inhibited the proliferation of MCF-7 (breast cells), HCT-116 (colon cells), HELA (cervical cells), HEPG-2 (liver cells), HCT-116 and HeLa cell lines [328-330]. *Equisetum arvense* exerted anticancer effect against human cancer cell lines HeLa, HT-29, and MCF7, human leukemic U 937 cells, melanoma B16 cells, cervical adenocarcinoma, lung fibroblast, breast adenocarcinoma, and human embryonic kidney cells [331-337]. *Erigeron Canadensis* possessed anticancer effect against human cervix adenocarcinoma (HeLa), skin carcinoma (A431), and breast adenocarcinoma (MCF-7) cells [338-343]. *Erodium cicutarium* inhibited the proliferation of colon cancer cells (Caco-2)[344]. *Eryngium creticum* inhibited the growth of MCF7 breast cancer cell line and HeLa cell line [345-348]. *Eucalyptus* species possessed anticancer effects against wide range of cell lines including human colon cancer cell lines HCT116, RKO, human ECV-304 cell lines, WEHI-3, HT-29, HL-60 cell lines, MCF-7, Hep-2, HepG-2, HeLa, HCT-116 , Caco-2 cell lines, liver , lung, prostate and breastcell lines [349-358]. *Eupatorium cannabinum* showed antiproliferative effect against colon cancer cellline HT29, leukaemia, ZNS tumor cells (V 251), DLD-1, CCRF-CEM, HL-60 cell lines, Jurkat cellline and Ehrlich ascites tumour cells [358-366]. *Euphorbia hirta* showed cytotoxicity in brine shrimp test and possessed anticancer effect against human epidermoid carcinoma KB 3-1 cells [367-369]. *Euphorbia macroclada* inhibited the growth of MDA-MB-468 cell line [369]. *Fagopyrum esculentum* possessed anticancer effect against Hep G2 (hepatoma) cells, L1210 (leukemia) cells, breast cancer (MCF-7) cells, human mammary cancer cell Bcap37, human leukemia U937 cells, mammary tumor and colon tumors in rats [370-375]. *Ficus carica* exerted antitumor activity against esophageal cancer line, breast cancer cell lines (MCF7), (Hep3b: Hepatocellular carcinoma; Hela: cervical epithelial cancer; PC-3*:* prostate cancer) cell lines, MCF-7, HepG-2, U2OS cell lines,T98G, U-138 MG,U-87 MG glioblastoma multiformecell lines and human melanoma cells [376-383]. *Ficus cunia* protected from the formation of micronuclei cells induced by cyclophosphamide in bone marrow of mice [384]. *Ficus religiosa* showed cytotoxicity in brine shrimp test and possessed anticancer effects againstcervical cancer cell lines SiHa (HPV16 positive), HeLa (HPV18 positive) and human breast cancer cells [385-391]. The anethole isolated from *Foeniculum vulgare* possessed anticancer effect against Ehrlich ascites tumour in mice [392-393]. Isopimara-7, 15-Dien-19-oic acid, extracted from the bulbs of *Fritillaria imperialis* inhibited the growth of cervical cancer cell line and HeLa cells [394]. *Fumaria officinalis* showed cytotoxicity in brine shrimp lethality bioassay [395-396]. *Galium aparine* possessed anticancer effect against human breast cancer cells (MCF-7), human colon cancer cells (Caco-2) and MCF-7 cell line [397-400]. *Galium verum* inhibited the growth of neck cancer cell lines HLaC78 and FADU [401-403]. *Glossostemon bruguieri* possessedantiproliferative effects against hepatocellular (HCC), HepG2 and Hep3B cell lines [404-405]. *Glycyrrhiza glabra* showed antitumor activity against intestinal carcinoma (Caco-2) and prostate carcinoma (PC-3) cell lines [406, 407]. *Gnaphalium luteoalbum* possessed cytotoxic activity against mouse fibroblasts (NIH3T3), healthy monkey kidney (VERO) and four human cancer cell lines (gastric, AGS; colon, HT-29; and breast, MCF-7 and MDAMB-231) [408-410]. Gossypol isolated from *Gossypium* species showed antiproliferative effect on a number of cancer cells including adrenal,

prostate, mammary carcinomas, gliomas, endometriosis, uterine myoma, MCF-7 WT, MCF-7 ADR and human melanoma cell lines (SK-mel-19 and SK-mel-28)[411-416]. *Haplophyllum* species exhibited antitumor activities against liver carcinoma (HEPG2) and lung carcinoma cell line (H1299) [417-418]. *Hedera helix* possessed cytotoxic activity on the brine shrimp bioassay and showedanti proliferative effect against Mat-LyLu cells (strongly metastatic), AT-2 cells (weakly metastatic) and mouse B16 melanoma cell lines [419-420]. *Helianthus annuus* showed antiproliferative effect against HeLa, MCF-7 and A-431 cell lines [421-422]. *Helianthus tuberosus* showed cytotoxic activities against MCF-7, A549, HeLa cancer, Hp G2- cells, HCT-116, MCF-7 and1301- cell lines [423-425]. *Herniaria hirsute* possessed cytotoxic properties against MCF7 (breast carcinoma), NCI H460 (non-small cell lung carcinoma), HeLa (cervical carcinoma), HepG2 (hepatocellular carcinoma) andPLP2 (porcine liver cells) [426-427]. *Hibiscus cannabinus* exhibited cytotoxic effect towards human colorectal cancer cell lines (HT29), HeLa, Hep-2 and A-549 cell lines [428-429]. *Hibiscus rosa sinensis* possessed anticancer effect against leukaemic cancer cell line (K-562), andinhibited 7,12-dimethyl benz(a)anthracene (DMBA)/croton oil-mediatedcarcinogenesis in mouse skin via 12-O-tetradecanoyl phorbol-13-acetate (TPA)-induced tumour promotion response [430-432]. *Hibiscus sabdariffa* showed anticancer effects against wide range of cancer including N-nitrosomethylurea (NMU)-induced leukemia of rats, human promyelocytic leukemia (HL-60), melanoma cells, human prostate cancer LNCaP (lymph node carcinoma of the prostate) and HeLa cells cell line[433-439]. Grossamide, and cannabisins D and G isolated from *Hyoscyamus niger* seeds exhibited moderate cytotoxicity in cultured LNCaP human prostate cancer cells [440-441]. *Hypericum triquetrifolium* showed anticancer effect against human cancer cell lines, large cell lung carcinoma cell line COR-L23, hepatocellular carcinoma cell line HepG-2, renal cell adenocarcinoma ACHN, melanoma cell line C32, Vero cell lines, colon and lung (HCT-116, A549)[442-443]. *Inula graveolens* possessed antiproliferative against A549 and HL60 cells [444-445]. *Iris pallida* exhibited anti-proliferative activity in the NCI 60 human cancer cell lines, A2780 and K562 (drug-sensitive and a drug-resistant cell line) [446-448]. The ethanolic extract of *Jasminum sambac* inhibited the growth of Dalton's lymphoma ascites-induced lymphatic cancer in Swiss albino mice, Hep-2, MCF-7, and Vero cell lines [449-451]. *Juglans regia* possessed anticancer effects against different human cancer cell lines [prostate colon (Colo-205 and HCT-116), breast (T47D), prostate (PC-3 and DU-145), skin (A-431) and lung (NCI-H322 and A549), DU145, MCF7 andTG/HAVSMC] [452-453]. *Juniperus communis* possessed cytotoxic activities against HepG2 cells, human prostate cancer cells (PC3), human colon cancer cells (HCT 116) and breast cancer cells (MCF7)[454-457]. The berries methanol extracts of *Juniperus oxycedrus* subsp. oxycedrus and *Juniperus oxycedrus* subsp. macrocarpa did not affect HepG2 cell viability and both were non-toxic against *Artemia salina* [458-459]. *Jussiaea repens* showed the highest cytotoxic activities against Ehrlich ascitis carcinoma cells lines [460-462]. *Kochia scoparia* showed antiproliferation effect in oral squamous cell carcinoma, human breast cancer cells and HepG2 cell [463-465]. *Lagerstroemia indica* showed cytotoxicity against A549 (nonsmall cell lung carcinoma), SK-OV-3 (ovary malignant ascites), SK-MEL-2 (skin melanoma), and HCT-15 (colon adenocarcinoma) [466-467]. *Lagerstroemia speciosa* exhibited cytotoxicity against Dalton's Lymphoma Ascites cells (DLA), Ehrlich ascites carcinoma cells, HCT116 human colon cancer cells and MCF-7 cell lines [468-470]. *Lantana camara* showed anticancer effects against Jurkat leukemia cell, Vero cell, MCF-7 cell, HeLa cell and Ehrlich ascites carcinoma [471-474]. *Lawsonia inermis*inhibited the growth of HCT-15 (human colon cancer cells), colon cancer COLO-205 cells, MCF-7, Hela, HCT-116, and HT-29[475-480]. *Lepidium sativum* exhibited cytotoxic effects against colon, endometrium cancer cells, K562, human cancer cell lines such as human neuroblastoma cell line (IMR-32), colon cancer cell lines (HT-15 & HT-29), lung cancer cell line A-549, HEp2 and MCF-7 cell line[481-485]. *Lippia nodiflora* possessed anticancer effect against MCF7 cells, human lung cancer cell line (NCI-H460), and Ehrlich's ascites carcinoma [486-488]. *Lithospermum officinale* inhibited the growth of NB4 cell line [489]. *Luffa acutangula* exhibited cytotoxic potential against human neuronal glioblastoma cells (U343), human lung cancer cells (A549 and NCI-H460) and Ehrlich ascites carcinoma (EAC) cell line [490-492]. *Luffa cylindrical* possessed cytotoxic effect in brine shrimp lethality assay and exhibited anticancer effect against hepatocellular carcinoma, breast cancer cell lines, acute myeloid leukemia, acute lymphocyte leukemia and colon cancer cells (HT-29 and HCT-15)[493-496]. *Lythrum salicaria* showed cytotoxic activities against colon carcinoma (HT- 29), leukemia (K-562), breast ductal carcinoma (T47D), and T47D cancer cell lines [497-498]. *Mangifera indica* possessed anticancer activity against Molt-4 leukemia, A-549 lung, MDA-MB-231 breast, LnCap prostate, SW-480 colon cancer cells, and breast cancer cells (MDA-MB-231 and MCF-7)[499-501]. *Marrubium vulgare* exhibited anticancer activity againt Ehrlich tumor cell lines, human tumor cell lines U251 and MCF7 (brain tumor and breast carcinoma cell lines), HeLa cell lines, K562, K562R (imatinib-resistant), and 697 human leukemia cell lines [502-505]. *Medicago sativa* exhibited cytotoxic effects against sensitive and multidrug-resistant tumor cells lines [mouse leukaemia P388 cell line and its doxorubicin-resistant counterpart (P388/DOX)[506-507]. *Melilotus officinalis* showed cytotoxicity in *Agrobacterium tumefaciens*-induced potato disk tumor assay [508]. *Mirabilis jalapa* possessed cytotoxicity in brine shrimp lethality bioassay and showed cytotoxicity against T47D and SiHa cell lines [509-511]. *Narcissus tazetta* possessed anticancer activity against MCF-7, Hep-2, Vero cell line, and against a panel of cancer cell lines [512-515]. *Nasturtium officinale* exhibited anticancer effect on Hela cells and HT29 cells [516-517]. *Nerium oleander* possessed antitumor activity on Ehrlich ascites carcinoma cells line, human breast cancer (Pasteur, C203), HepG-2: human hepatocellular carcinoma (Pasteur, C124), human chronic myeloid Leukemia (Pasteur, C122) cell lines and liver cancer cell line (HEPG2) [518-521]. *Ocimum basilicum* possessed cytotoxicity in brine shrimp assay and showed anticancer effect against human cervix adenocarcinoma HeLa cells, human melanoma FemX cells, human chronic myelogenous

leukaemia K562 cells, human ovarian SKOV3 cells and against 7,12 dimethyl benz(a)anthracene (DMBA)-initiated skin papilloma[522-524]. *Ononis spinosa* showed anticancer effects against ovarian, breast, colon, liver, cervical, lung, bladder, gastric, esophagus, nasopharyngeal, adrenal medulla tumor, multiple myeloma, osteosarcoma, glioma [525-526]. *Onopordum acanthium* showed antiproliferative action on HL-60 leukemia cells, glioblastoma U-373 tumour cells, HeLa (cervix adenocarcinoma), MCF7 (breast adenocarcinoma) and A431 (skin epidermoid carcinoma) [527-530]. Polysaccharide isolated from *Orchis mascula* possessed anticancer activity against A549 lung and AGS human gastric carcinoma [531-532]. *Ranunculus arvensis* exhibited cytotoxicity in brine shrimp lethality assay [533]. *Reseda lutea* showed significant antiproliferative effects against human A375 (melanoma) and MRC5 (fibroblast) cell lines [534]. While, *Reseda odorata* possessed anticancer effects against various types of human malignancies such as breast, colon, pancreatic, prostate, oral, lung, kidney, bladder, ovarian, cervical, placental, skin, liver, gastric, oesophageal cancers and glioblastoma [535-537],

3. Conclusion

Many anticancer drugs are available for the treatment of cancer, and in most cases, they caused undesirable adverse effects. Many medicinal plants caused cell cycle arrest and inhibited angiogenesis in tumor cells in addition to induction of apoptosis and inhibition of invasiveness and metastasis. The current review highlighted the naturally-derived therapies as promising anticancer treatments.

Compliance with ethical standards

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References

[1] Khan T, Ali M, Khan A, Nisar P, Jan SA, Afridi S and Shinwari ZK. Anticancer Plants: A Review of the Active Phytochemicals, Applications in Animal Models, and Regulatory Aspects. Biomolecules. 2019; 10(1): 47.

[2] Akhtar MF, Saleem A, Alamgeer and Saleem M. A Comprehensive review on ethnomedicinal, pharmacological and phytochemical basis of anticancer medicinal plants of Pakistan. Curr Cancer Drug Targets. 2019; 19(2): 120-151.

[3] Asadi-Samani M, Kooti W, Aslani E and Shirzad H. A Systematic review of Iran's medicinal plants with anticancer effects. J Evid Based Complementary Altern Med. 2016; 21(2): 143-153.

[4] Aidi Wannes W, Saidani Tounsi M, Marzouk B. A review of Tunisian medicinal plants with anticancer activity. J Complement Integr Med 2017; 15(1): /j/jcim.

[5] Al-Snafi AE. Therapeutic properties of medicinal plants: a review of plants with anticancer activity (part 1). Int J of Pharmacy 2015; 5(3): 104-124.

[6] Al-Snafi AE. Medicinal plants with anticancer effects (part 2) - plant based review. Sch Acad J Pharm 2016; 5(5): 175-193.

[7] Al-Snafi AE. Clinically tested medicinal plant: A review (Part 1). SMU Medical Journal 2016; 3(1): 99-128.

[8] Kubo S, Kuroda M, Matsuo Y, Masatani D, Sakagami Hand Mimaki Y. New cardenolides from the seeds of *Adonis aestivalis.* Chem Pharm Bull 2012; 60(10): 1275–1282.

[9] Al-Snafi AE. *Adonis aestivalis*: pharmacological and toxicological activities- A revew. Asian Journal of Pharmaceutical Science & Technology 2016; 6(2): 96-102.

[10] Al-Snafi AE. The pharmacological importance of *Ailanthus altissima*- A review. International Journal of Pharmacy Review and Research 2015; 5(2): 121-129.

[11] Anderson LA, Harris A and Phillipson JD. Production of cytotoxic canthin-6-one alkaloids by *Ailanthus altissima* plant cell cultures. J Nat Prod 1983; 46(3): 374-378.

[12] Zhao C, Zhang B, Fan J and Shao J. Studies on the anti-tumor constituents of fruits of *Ailanthus altissima* (Mill) Swingle. Journal of Yangzhou University 2010; 4: 39-41.

[13] Tamura S, Fukamiya N, Okano M, Koyama J, Koike K, Tokuda H, Aoi W, Takayasu J, Kuchide M and Nishino H. Three new quassinoids, ailantinol E, F, and G, from*Ailanthus altissima*. Chem Pharm Bull 2013; 51(4): 385-389.

[14] Kubota K, Fukamiya N, Tokuda H, Nishino H, Tagahara K, Lee KH and Okano M. Quassinoids as inhibitors of Epstein-Barr virus early antigen activation. Cancer Lett 1997; 113(1-2): 165-168.

[15] Wang Y, Wang WJ, Su C, Zhang DM, Xu LP, He RR, Wang L, Zhang J, Zhang XQ and Ye WC. Cytotoxic quassinoids from *Ailanthus altissima*. Bioorg Med Chem Lett 2013; 23(3): 654-657.

[16] De Feo VV, LD Martino, Leone AA, Pizza CC and Silvia S. Antiproliferative effects of tree-of-heaven (*Ailanthus altissima* Swingle). Phytother Res 2005; 19(3): 226-230.

[17] De Feo V, Martino LD, Santoro A, Leone A, Pizza C, Franceschelli S and Pascale M. Antiproliferative effects of tree-of-heaven (*Ailanthus altissima*Swingle). Phytother Res 2005; 19(3): 226-230.

[18] Ammirante M, Di Giacomo R, De Martino L, Rosati A, Festa M, Gentilella A, Pascale MC, Belisario MA, Leone A, Turco MC and De Feo V. 1-Methoxy-canthin-6-one induces c-Jun NH2-terminal kinase-dependent apoptosis and synergizes with tumor necrosis factor-related apoptosis-inducing ligand activity in human neoplastic cells of hematopoietic or endodermal origin. Cancer Res 2006; 66(8): 4385-4393.

[19] Sulaiman GM. Antimicrobial and cytotoxic activities of methanol extract of *Alhagi maurorum.* Afr J Microbiol Res 2013; 7(16): 1548-1557.

[20] Al-Snafi AE. *Alhagi maurorum* as a potential medicinal herb: An overview. International Journal of Pharmacy Review and Research 2015; 5(2): 130-136.

[21] Welch C, Wuarin L and Sidell N. Antiproliferative effect of the garlic compound S-allyl cysteine on human neuroblastoma cells *in vitro*. Cancer Lett 1992; 63: 211-219.

[22] Majewski S, Chadzynska M. Effects of heparin, allantoin and cepae extract on the proliferation of keloid fibroblasts and other cells *in vitro*. Dermatologische Monatsschrift 1998; 174: 106-129.

[23] Avuso M J and Saenz MT. Antimitotic activity of a protein fraction isolated from viscum-cruciatum on the root meristems of *Allium cepa*. Fitoterapia 1985; 56: 308-311.

[24] Shon MY, Choi SD, Kahng GG *et al.* Antimutagenic, antioxidant and free radical scavenging activity of ethyl acetate extracts from white, yellow and red onions. Food Chem Toxicol 2004; 42: 659-666.

[25] Sengupta A, Ghosh S, and Bhattacharjee S. Allium vegetables in cancer pevention: An overview. Asian Pacific Journal of Cancer Prevention 2004; 5: 237-245.

[26] Fattorusso E, Lanzotti V, Taglialatela-Scafati O, Di Rosa M, and Ianaro A. Cytotoxic saponins from bulbs of *Allium porrum* L.J Agric Food Chem 2000; 48(8): 3455-3462.

[27] Hong YS, Ham YA, Choi JH *et al.*Effects of allyl sulfur compounds and garlic extract on the expression of Bcl-2, 28-Bax, and p53 in non small cell lung cancer cell lines. Experimental and Molecular Medicine 2000; 32: 127-134.

[28] Li G, Qiao CH, Lin RI, *et al.* Anti-proliferative effects of garlic constituents in cultured human breast cancer cells. Oncol Rep 1995; 2: 787-791.

[29] Druesne-Pecollo N, Pagniez A, Thomas M *et al.* Diallyl disulfide increases CDKN1A promoter-associated histone acetylation in human colon tumor cell lines. Journal of Agriculture Food Chemistry 2006; 54: 7503-7507.

[30] Kwon KB, Yoo SJ, Ryu DG *et al.* Induction of apoptosis by diallyl disulfide through activation of caspase–3 in human leukemia HL-60 cells. Biochemical Pharmacology 2002; 63: 41-47.

[31] Tsai CW, Chen HW, Yang JJ *et al.* Diallyl disulfide and diallyl trisulfide up-regulate the expression of the class of glutathione *S*transferase via an AP-1-dependent pathway. Journal of Agriculture Food Chemistry 2007; 55: 1019-1026.

[32] Wen J, Zhang YW, Chen XQ *et al.* Enhancement of diallyl disulfide-induced apoptosis by inhibitors of MAPKs in human HepG2 hepatoma cells. Biochemical Pharmacology 2004; 68: 323-331.

[33] Sundaram SG and Milner JA. Diallyl disulfide induces apoptosis of human colon tumor cells. Carcinogenesis 1996; ,17: 669-673.

[34] Schaffer E M, Liu JZ, Green J *et al.*Garlic and associated allyl sulfur components inhibit N-methyl-N-nitrosourea induced rat mammary carcinogenesis. Cancer Lett 1996; 102: 199-204.

[35] Wargovich MJ. Diallyl sulfide, a flavor component of garlic (*Allium sativum*), inhibits dimethylhydrazine induced colon cancer. Carcinogenesis 1987; 8: 487-489.

[36] Hong JY, Wang ZY, Smith TJ *et al.* Inhibitory effects of diallyl sulfide on the metabolism and tumorigenicity of the tobacco-specific carcinogen 4-(methylnitrosamino)-1-(3- pyridyl)-1-butanone (NNK) in A/J mouse lung. Carcinogenesis 1992; 13: 901-904.

[37] You WC, Blot WJ, Chang YS *et al.* Allium vegetables and reduced risk of stomach cancer. J Natl Cancer Inst 1989; 81: 162-164.

[38] You WC, Zhang L, Gail MH, *et al.* Helicobacter pylori infection, garlic intake and precancerous lesions in a Chinese population at low risk of gastric cancer. Int J Epidemiol 1998; 27: 941-944.

[39] Pinto JT, Qiao C, Xing J, *et al.* Effects of garlic thioallyl derivatives on growth, glutathione concentration, and polyamine formation of human prostate carcinoma cells in culture. Am J Clin Nutr 1997; 6: 398-405.

[40] Perchellet JP, Perchellet EM, Abney NL *et al*. Effects of garlic and onion oils on glutathione peroxidase activity, the ratio of reduced and oxidized glutathione and ornithine decarboxylase induction in isolated mouse epidermal cells treated with tumor promoters. Cancer Biochem Biophys 1986; 8: 299-312.

[41] Keiss HP, Dirsch VM, Hartung T *et al.*Garlic (*Allium sativum* L.) modulates cytokine expression in lipopolysaccharide-activated human blood thereby inhibiting NF-kappa B activity. J Nutr 2003; 133: 2171-2175.

[42] Geng Z, Rong Y, and Lau BH. S-allyl cysteine inhibits activation of nuclear factor kappa B in human T cells. Free Radic Biol Med 1997; 23: 345-350.

[43] Houin HS, Lim HJ, Lee HJ *et al.* Garlic (*Allium sativum*) extract Inhibits lipopolysaccharide-induced Toll-like receptor 4 dimerization. Biosci Biotechnol Biochem 2008; 72(2): 368-375.

[44] Kucekova Z, Mlcek J, Humpolicek P, Rop O, Valasek P, and Saha P. Phenolic compounds from*Allium schoenoprasum*, *Tragopogonpratensis* and *Rumexacetosa* and their antiproliferative effects. *Molecules*, 16(11), 2011, 9207-9217. and their antiproliferative effects. Molecules 2011; 16(11): 9207-9217.

[45] Kuriyama I, Musumi K, Yonezawa Y, Takemura M, Maeda N, Iijima H, Hada T, Yoshida H, and Mizushina Y. Inhibitory effects of glycolipids fraction from spinach on mammalian DNA polymerase activity and human cancer cell proliferation. J Nutr Biochem 2005; 16(10): 594-601.

[46] Zhou Y, Zhuang W, Hu W, Liu GJ, Wu TX, and Wu XT. Consumption of large amounts of Allium vegetables reduces risk for gastric cancer in a meta-analysis. Gastroenterology 2011; 141(1): 80-89.

[47] Belman S. Onion and garlic oils inhibit tumor promotion. Carcinogenesis 1983; 4: 1063-1065.

[48] Hayes MA, Rushmore TH, and Goldberg MT. Inhibition of hepatocarcinogenic responses to 1, 2-dimethylhydrazine by diallyl sulfide, a component of garlic oil. Carcinogenesis 1987; 8: 1155-1157.

[49] Challier B, Perarnau JM, Viel JF. Garlic, onion and cereal fibre as protective factors for breast cancer: a French casecontrol study. Eur J Epidemiol 1998; 14: 737-747.

[50] Fleischauer AT, Poole C and Arab L. Garlic consumption and cancer prevention: metaanalyses of colorectal and stomach cancers. Am J Clin Nutr 2000; 72: 1047-1052.

[51] Fleischauer AT and Arab L. Garlic and cancer: a critical review of the epidemiologic literature. J Nutr 2001; 131: 1032S-1040S.

[52] Key TJ, Silcocks PB, davey GK *et al.* A case-control study of diet and prostate cancer. Br J cancer 1997; 76: 678-687.

[53] Milner JA. A historical perspective on garlic and cancer. J Nutr 2005; 131(10): 27S-31S.

[54] Al-Snafi AE. Pharmacological effects of *Allium* species grown in Iraq. An overview. International Journal of Pharmaceutical and health care Research 2013; 1(4): 132-147.

[55] Ding Z, Dai Y, Hao H, Pan R, Yao X and Wang Z. Anti-inflammatory effects of scopoletin and underlying mechanisms. Pharm Biol 2009; 46(12): 854-860.

[56] Al-Snafi AE. The Pharmaceutical importance of *Althaea officinalis* and *Althaea rosea*: A Review. Int J Pharm Tech Res 2013; 5(3): 1387-1385.

[57] Classen B and Blasheck W. High molecular weight acidic polysaccharides from *Malva sylvestris* and *Alcea rosea*. Planta Medica 1998; 64(7): 640-644.

[58] Loganayaki N and Manian S. Antitumor activity of the methanolic extract of *Ammannia baccifera* L. against Dalton's ascites lymphoma induced ascitic and solid tumors in mice. J Ethnopharmacol 2012; 142(1): 305-309.

[59] Al-Snafi AE. The chemical constituents and pharmacological effects of *Ammannia baccifera* - A review. International Journal of Pharmacy 2015; 5(1): 28-32.

[60] Innocenti G, Dall'Acqua S, Viola G, Loi MC. Cytotoxic constituents from *Anagyris foetida* leaves. Fitoterapia 2006; 77(7-8): 595-597.

[61] Sahranavard S, Naghibi1 F, Mosaddegh M, Esmaeili S, Sarkhail P, Taghvaei M and Ghafari *S.* Cytotoxic activities of selected medicinal plants from Iran and phytochemical evaluation of the most potent extract. Research in Pharmaceutical Sciences 2009; 4(2): 133-137.

[62] Al-Snafi AE. The pharmacology of *Anchusa italica* and *Anchusa strigosa* – A review. International Journal of Pharmacy and Pharmaceutical Sciences 2014; 6(4): 7-10.

[63] Upur H, Yusup A, Baudrimont I, Umar A, Berke B, Yimit D, Lapham JC, Creppy EE and Moore N. Inhibition of cell growth and cellular protein, DNA and RNA synthesis in human hepatoma (HepG2) cells by ethanol extract of Abnormal SavdaMunziq of Traditional UighurMedicine, 2011.

[64] Riaz M, rasool N, Rasool S, Bukhari IH, Zubair M, Noreen M and Abbas M. Chemical analysis, cytotoxicity and antimicrobial studies by snapdragon: A medicinal plant. Asian Journal of Chemistry 2013; 25(10): 5479-5482.

[65] Al-Snafi AE. The pharmacological Importance of *Antirrhinum majus* - A review. Asian J of Pharm Sci & Tech 2015; 5(4): 313-320.

[66] Subhadradevi V, Khairunissa K, Asokkumar K, Sivashanmugam MUA, and Jagannath P. Induction of apoptosis and cytotoxic activities of *Apium graveolens* Linn. using in vitro models.Middle-East Journal of Scientific Research 2011; 9(1): 90-94.

[67] Al-Snafi AE. The Pharmacology of *Apium graveolens.* - A review. International Journal for Pharmaceutical Research Scholars 2014; 3(1-1): 671-677.

[68] Cho MK, Jang YP, Kim YC and Kim SG. Arctigenin, a phenylpropanoid dibenzyl-butyrolactone lignan, inhibits MAP kinases and AP-1 activation via potent MKK inhibition: the role in TNF-inhibition. International Immunopharmacology 2004; 4: 1419-1429.

[69] Al-Snafi AE. The Pharmacological importance and chemical constituents of *Arctium Lappa*. A review. International Journal for Pharmaceutical Research Scholars 2014; 3(1-1): 663-670.

[70] Alali F Q, Tawaha K, Shehadeh M B, and Telfah S. Phytochemical and biological investigation of *Aristolochia maurorum* L. Z NaturforschC 2006; 61(9-10): 685-691.

[71] Akrout A, Gonzalez LA, El Jani H, and Madrid PC.Antioxidant and antitumor activities of *Artemisia campestris* and *Thymela eahirsuta* from southern Tunisia. Food Chem Toxicol 2011; 49(2): 342-347.

[72] Al-Snafi AE. The pharmacological importance of *Artemisia campestris*- A review. Asian Journal of Pharmaceutical Research 2015; 5(2): 88-92.

[73] Leporatti ML and Impieri M. Ethnobotanical notes about some uses of medicinal plants in Alto Tirreno Cosentino area (Calabria, Southern Italy). Journal of Ethnobiology and Ethnomedicine2009; 3: 34-39.

[74] Al-Snafi AE. The constituents and biological effects of *Arundo donax*- A review. InternationalJournal of Phytopharmacy Research 2015; 6(1): 34-40.

[75] Zanetti GD. Lectina dos rizomas de *Arundo donax*L.:purificação,caracterização, propriedades,imuno-histoquímica e separação das isoformas) *Arundo donax* L. rhizomes lectin : purification, characterization, properties, immunohistochemistry and separations of isoforms. PhD thesis, Universidade Federal do Rio Grande do Sul. Instituto de Biociências. Programa de Pós-Graduação em Botânica, 2007.

[76] Al-Snafi AE. Chemical constituents and pharmacological effects of*Asclepias curassavica* – A review. Asian Journal of Pharmaceutical Research 2015; 5(2): 83-87.

[77] Kupchan SM, Knox JR, Kelsey JE, and Saenz JA. Renauld Calotropin, a cytotoxic principle isolated from *Asclepiascurassavica* L. Science 1964; 146(3652): 1685-1686.

[78] Roy MC, Chang FR, Huang HC Chiang MY and Wu YC. Cytotoxic principles from the Formosan Milkweed, *Asclepias curassavica*. J Nat Prod 2005; 68(10): 1494-1499.

[79] Li JZ, Qing C, Chen CX, Hao XJ, Liu HY. Cytotoxicity of cardenolides and cardenolide glycosides from *Asclepias curassavica*. Bioorg Med Chem Lett 2009; 19(7): 1956-1959.

[80] Ji Y , Ji C, Yue L and Xu H. Saponins isolated from Asparagus induce apoptosis in human hepatoma cell line HepG2 through a mitochondrial-mediated pathway. Curr Oncol 2012; 19 (2): eS1–eS9.

[81] Al-Snafi AE. The pharmacological importance of *Asparagus officinalis* - A review. Journal of Pharmaceutical Biology. 2015; 5(2): 93-98.

[82] Shao Y, Chin CK, Ho CT, Ma W, Garrison SA and Huang MT. Anti-tumor activity of the crude saponins obtained from asparagus. Cancer letters 1996; 104(1): 31-36.

[83] Shao Y, Poobrasert O, Kennelly E J, Chin CK, Ho CT, Huang MT, Garrison SA, and Cordell GA. Steroidal saponins from *Asparagusofficinalis* and their cytotoxic activity. Planta Med 1997; 63(3): 258-262.

[84] Wang J, Liu Y, Zhao J, Zhang W and Pang X.Saponins extracted from by-product of *Asparagus officinalis* L. suppress tumour cell migration and invasion through targeting Rho GTPase signalling pathway. J Sci Food Agric 2013; 93(6): 1492-1498.

[85] Huang XF, Lin YY and Kong LY. Steroids from the roots of *Asparagus officinalis* and their cytotoxic activity. J Integr Plant Biol 2011; 50(6): 717-722.

[86] Krasteva I, Platikanov S, Nikolov S, and Kaloga M. Flavonoids from *Astragalus hamosus*.Nat Prod Res 2007; 21(5): 392-395.

[87] Al-Snafi AE. Chemical constituents and pharmacological effects of *Astragalushamosus* and *Astragalus tribuloides* grown in Iraq. Asian J of Pharm Sci & Tech 2015; 5(4): 321-328.

[88] Krasteva I, Momekov G, Zdraveva P, Konstantinov S and Nikolov S. Antiproliferative effects of a flavonoid and saponins from *Astragalus hamosus* against human tumor cell lines. Pharmacognosy Magazine2008; 4: 269.

[89] Krasteva I, Momekov G, Zdraveva P, Konstantinov S and Nikolov S. Antiproliferative effects of a flavonoid and saponins from *Astragalus hamosus* against human tumor cell lines. Pharmacognosy Magazine2008; 4: 269.

[90] Momekov G, Krasteva I, Platikanov S, Nikolov S and Konstantinov S. Cytotoxic activity of volatiles from four Astragalus species. Dokladi Na B Lgarskata Akademiâ Na Naukite 2007; 60: 1023-1026.

[91] RajKapoor B, Jayakar B, Murugesh N. Antitumor activity of *Bauhinia variegata* on Dalton's ascitic lymphoma. J Ethnopharmacol 2003; 89: 107-109.

[92] Al-Snafi AE.The Pharmacological importance of *Bauhinia variegata*. A Review.Journal of Pharma Sciences and Research 2013; 4(12): 160-164.

[93] Sonam P and Agrawal RC. Effects of *Bauhinia variegata* bark extract on DMBA induced mouse skin carcinogenesis: A preliminary study. Global Journal of Pharmacology 2009; 3(3): 158-162.

[94] RajKapoor B, Jayakar B, Murugesh N and Sakthisekaran D. Chemoprevention and cytotoxic effect of *Bauhinia variegate* against N-nitrosodiethylamine induced liver tumors and human cancer cell lines. J Ethnopharmacol 2006; 104: 407- 409.

[95] RajKapoor B, Jayakar B, Murugesh N. Antitumor activity of *Bauhinia variegata* on Dalton's ascitic lymphoma. J Ethnopharmacol 2003; 89: 107-109.

[96] Sohretoglu D, Karakas FB, Stujber M, Turker AU, Calis I, Yalcin FN and Liptaj T.A new oleanan type saponin from *Bellis perennis* through antitumoral bioassay-guided procedures.Biomed Pap Med Fac Univ Palacky Olomouc Czech Repub 2009; 156 (1): S1–S100.

[97] Al-Snafi AE. The Pharmacological importance of *Bellis perennis* - Areview. International Journal of Phytotherapy 2015; 5(2): 63-69.

[98] Pehlivan Karakas F, Şöhretoğlu D, Liptaj T, Štujber M, Ucar Turker A, Marák J, Çalış İ and Yalçın FN. Isolation of an oleanane-type saponin active from *Bellis perennis* through antitumor bioassay-guided procedures. Pharm Biol 2014; 52(8): 951-955.

[99] Rzeski W, Stepulak A, Szymański M, Sifringer M, Kaczor J, Wejksza K, Zdzisińska B and Kandefer-Szerszeń M. Betulinic acid decreases expression of bcl-2 and cyclin D1, inhibits proliferation, migration and induces apoptosis in cancer cells. Naunyn Schmiedebergs Arch Pharmacol 2006; 374(1): 11-20.

[100] Al-Snafi AE. The medical importance of *Betula alba* - An overview. Journal of PharmaceuticalBiology2015; 5(2): 99-103.

[101] Dehelean C A, Şoica C , Ledeţi I, Aluaş M, Zupko I, Găluşcan A, Cinta-Pinzaru S and Munteanu M. Study of the betulin enriched birch bark extracts effects on human carcinoma cells and ear inflammation. Chemistry Central Journal 2012; 6(137): 1-9.

[102] Tezuka P, Stampoulis A, Banskota S, Awale K Q, Saiki T I and Kadota S. Constituents of the Vietnamese medicinal plant *Orthosiphon stamineus*. Chemical and Pharmaceutical Bulletin2000; 48(11): 1711-1714.

[103] Fu L, Zhang S, Li N, Wang J, Zhao M, Sakai J, Hasegawa T, Mitsui T, Kataoka T, Oka S, Kiuchi M, Hirose K and Ando M. Three new triterpenes from *Nerium oleander* and biological activity of the isolated compounds. Journal of Natural Products 2005; 68(2): 198-206

[104] Liu H, Wang S, Cai B and Yao X. Anticancer activity of compounds isolated from *Engelhardtia serrata* Stem Bark. Archives of Physiology and Biochemistry 2004; 42(7): 475-477.

[105] Wolniak M, Tomczykowa M, Gudej J and Waweri I. Antioxidant activity of extract and flavonoids from *Bidenstripartite*. Acta Poloniae Pharmaceutica Drug Research 2007; 63(5): 441-447.

[106] Al-Snafi AE. Chemical constituents and pharmacological importance of *Bidens tripartitus* - A review. Ind J of Pharm Sci & Res 2015; 5(4): 257-263.

[107] Saeed M K, Anjum S, Ahmad I, Nisa A, Ali S, Zia A and Ali S. Nutritional facts and free radical scavenging activity of turnip (*Brassica rapa*) from Pakistan. World Applied Sciences Journal 2012; 19(3): 370-375.

[108] Al-Snafi AE. The pharmacological importance of *Brassica nigra* and *Brassica rapa* grown in Iraq. J of Pharm Biology 2015; 5(4): 240-253.

[109] Farag MA and Motaal AA. Sulforaphane composition, cytotoxic and antioxidant activity of crucifer vegetables. Journal of Advanced Research 2010; 1: 65-70.

[110] Barakat NT, Obaid HH, Ali AM, Hassan AA and Abaas ZA. Cytotoxic effect of aqueous extract of *Brassica rapa* roots on cancer cell lines *in vitro.* Iraqi Journal of Sciences 2010; 51(4): 550-560.

[111] Wu Q, Cho JG, Yoo KH, Jeong TS, Park JH, Kim SY, Kang JH, Chung IS, Choi MS, Lee KT, Chung HG, Bang MH and Baek NI. A new phenanthrene derivative and two diarylheptanoids from the roots of *Brassica rapa*ssp.campestris inhibit the growth of cancer cell lines and LDL-oxidation. Arch Pharm Res 2013; 36(4): 423-429.

[112] Lin P, Wong JH, Xia L and Ng TB. Campesin, a thermostable antifungal peptide with highly potent antipathogenic activities. J Biosci Bioeng 2009; 108(3): 259-265.

[113] Benarba B, Meddah B and Aoues A. *Bryonia dioica* aqueous extract induces apoptosis through mitochondrial intrinsic pathway in BL41 Burkitt's lymphoma cells. Journal of Ethnopharmacology 2012; 141: 510-516.

[114] Devbhuti D, Gupta JK and Devbhuti P. Studies on antitumor activity of *Bryophyllum calycinum* Salisb. against Ehrlich ascites carcinoma in Swiss albino mice. Journal of PharmaSciTech 2012; 2(1): 31-33.

[115] Al-Snafi AE. The Chemical constituents and pharmacological effects of *Bryophyllum calycinum*- A review. Journal of Pharma Sciences and Research 2013; 4(12): 171-176.

[116] Sahranavard S, Naghibi F, Mosaddegh M, Esmaeili1 S, Sarkhail P,Taghvaei M and Ghafari S. Cytotoxic activities of selected medicinal plants from Iran and phytochemical evaluation of the most potent extract. Research in Pharmaceutical Sciences 2009; 4(2): 133-137.

[117] Gupta M, Mazumder UK, Sambath KR, Thangavel S, and Vamsi M L M. Antitumor activity and antioxidant status of *Caesalpinia bonducella* against Ehrlich ascites carcinoma in Swiss albino mice. J Pharmacol Sci 2004; 94: 177-184.

[118] Al-Snafi AE. Pharmacology and medicinal properties of *Caesalpinia crista*- An overview. International Journal of Pharmacy 2015; 5(2): 71-83.

[119] Billah MM, Khatun H, Parvin S, Islam E, Islam SM, Mia AA and Islam R. Antibacterial, antidiarrhoeal, and cytotoxic activities of methanol extract and its fractions of *Caesalpinia bonducella* (L) Roxb leaves. BMC Complement Altern Med 2013; 13(1): 101-107.

[120] Tian QJ, Ou YH, He XBand Jiang YD. One new antitumour cassane-type diterpene from *Caesalpinia crista*. Nat Prod Re 2013; , 27(6): 537-340.

[121] Yadav PP, Maurya R, Sarkar J, Arora A, Kanojiya S, Sinha S, Srivastava MN and Raghubir R. Cassane diterpenes from Caesalpinia bonduc. Phytochemistry 2009; 70(2): 256-261.

[122] Fonseca YM, Catini CD, Vicentini FT, Nomizo A, Gerlach RF and Fonseca MJ. Protective effect of *Calendula officinalis* extract against UVB-induced oxidative stress in skin: evaluation of reduced glutathione levels and matrix metalloproteinase secretion. J Ethnopharmacol2010; 127(3): 596-601.

[123] Al-Snafi AE. The chemical constituents and pharmacological effects of *Calendula officinalis* - A review. Indian Journal of Pharmaceutical Science & Research 2015; 5(3): 172-185.

[124] Ukiya M, Akihisa T, Yasukava K, Tokuda H, Suzuki T and Kimura Y. Anti-inflammatory, anti-tumor-promoting and cytotoxic activities of constituents of marigold (*Calendula officinalis*) flowers. J Nat Prod 2006; 69: 1692-1696.

[125] Matysik G, Wojciak-Kosior M and Paduch R. The influence of *Calendula officinalis* flos extracts on cell cultures, and the chromatographic analysis of extracts. J Pharm Biomed Anal 2005; 38: 285-292.

[126] Jiménez-Medina E , Garcia-Lora A, Paco L, Algarra I, Collado A and Garrido F. A new extract of the plant *Calendula officinalis* produces a dual *in vitro* effect: cytotoxic anti-tumor activity and lymphocyte activation. BMC Cancer 2006; 6: 119.

[127] Murti Y, Singh A and Pathak D. *In vitro* anthelmintic and cytotoxic potential of different extracts of *Calotropis procera* leaves. Asian J Pharm Clin Res 2013; 6(1): 14-15.

[128] Al-Snafi AE. The constituents and pharmacological properties of *Calotropis procera*- An overview. International Journal of Pharmacy Review & Research 2015; 5(3): 259-275.

[129] Prabha MR and Vasantha K. Antioxidant, cytotoxicity and polyphenolic content of *Calotropis procera* (Ait.) R. Br. Flowers. Journal of Applied Pharmaceutical Science 2011; 1(7): 136-140.

[130] Smit HF, Woerdenbag HJ, Singh RH, Meulenbeld GJ, Labadie RP and Zwaving JH. Ayurvedic herbal drugs with possible cytostatic activity. J Ethnopharmacol 1995; 47: 75-84.

[131] Van Quaquebeke E, Simon G, Andre A, Dewelle J, Yazidi ME, Bruyneel F, Tuti J, Nacoulma O, Guissou P, Decaestecker C, Braekman JC, Kiss R and Darro F. Identification of a novel cardenolide (2-oxovoruscharin) from *Calotropis procera* and the hemisynthesis of novel derivatives displaying potent in vitro antitumor activities and high in vivo tolerance: structure activity relationship analyses. J Med Chem 2002; 48: 849-856.

[132] Magalh HIF, Ferreira PMP, Moura ES, Torres M, Alves ANN, Pessoa ODL and Lotufo LC. *In vitro* and*in vivo*antiproliferative activity of *Calotropis procera*stem extracts. Anais da Academia Brasileira de Ciências 2010; 82(2): 407-416.

[133] Rajani M, Gupta SK. Anti-tumor studies with extracts of *Calotropis procera* (Ait.) R.Br. root employing Hep2 cells and their possible mechanism of action. Indian Journal of Experimental Biology 2009; 47(5): 343-348.

[134] Samy RP, Rajendran P, Li F, Anandi NM, Stiles BG, Ignacimuthu S, Sethi G and Chow VT. Identification of a novel *Calotropis procera* protein that can suppress tumor growth in breast cancer through the suppression of NF-κB pathway. PLoS One 2012; 7(12): e48514.

[135] Samy RP and Chow VTK. Pilot study with regard to the wound healing activity of protein from *Calotropis procera* (Ait.) R. Br. Evidence-Based Complementary and Alternative Medicine 2012: 294-528.

[136] Moshi M J, Innocent E, Magadula J J, Otieno D F, Weisheit P K and Nondo R S. Brine shrimp toxicity of some plants used as traditional medicines in Kagera Region, north western Tanzania. Tanzania Journal of Health Research 2010; 12(1): 63-67.

[137] Al-Snafi AE. Bioactive components and pharmacological effects of *Canna indica*- An overview. International Journal of Pharmacology and Toxicology 2015; 5(2): 71-75.

[138] Lam SK, Han QF and Ng TB. Isolation and characterization of a lectin with potentially exploitable activities from caper (*Capparis spinosa*) seeds. Biosci. Rep 2009; 29(5): 293-299.

[139] Al-Snafi AE. The chemical constituents and pharmacological effects of *Capparis spinosa*- An overview. Indian Journal of Pharmaceutical Science andResearch 2015; 5(2): 93-100.

[140] Al-Daraji MNJ. A study of the inhibitory effect of the capar, *Capparis spinosa* L. aqueous crude leaf extract on the HEP-2 and HELA cancer cell line. Iraqi Journal of Desert Studies 2010; 2(1): 67-73.

[141] Rathee P, Rathee D, Rathee D, Rathee S. *In vitro* anticancer activity of stachydrine isolated from *Capparisdecidua* on prostate cancer lines. Nat Prod Res 2012; 26(18): 1737-1740.

[142] Venugopal Y, Ravindranth A, Kalpana G, Prabhakar PR. Anti-tumor activity of *Capparis sepiaria* on Ehrlich Ascites carcinoma in mice. Int J Biomed Res 2011; 2: 262-271.

[143] Yu L Le-Qiong Xie, Yu-bin Ji. Preliminary Study on apoptotic effect induced by n-butanol extract in *Capparis spinosa* L. on SGC-7901. Bioinformatics and Biomedical Engineering (iCBBE) 2010; DOI: 10.1109/ ICBBE.2010.5516478

[144] Al-Asady AAB, Khalil KH and Barwari SSM. Cytotoxic and cytogenetics effects of aqueous, methanolic and secondary metabolites extracts of *Capparis spinosa* on tumor cell lines in vitro. Jordan Journal of Biological Sciences 2012; 5(1): 15-30.

[145] Yildirim A B, Karakas F B, Turker A U. In vitro antibacterial and antitumor activities of some medicinal plant extracts, growing in Turkey. Asian Pacific Journal of Tropical Medicine 2012: 616-624.

[146] Al-Snafi AE. The chemical constituents and pharmacological effects of *Capsella bursa-pastoris* - A review. International Journal of Pharmacology and Toxicology 2015; 5(2): 76-81.

[147] Kuroda K, Akao M, Kanisawa M and Miyaki K. Inhibitory effect of *Capsella bursa-pastoris* extract on growth of Ehrlich solid tumor in mice. Cancer Res 1976; 36(6): 1900-1903.

[148] Lee K E, Shin J A, Hong I S, Cho N P and Cho S D. Effect of methanol extracts of Cnidium officinale Makino and *Capsella bursa-pastoris* on the apoptosis of HSC-2 human oral cancer cells. Exp Ther Med 2013; 5(3): 789-792.

[149] Kuroda Kand Akao M. Antitumor and anti-intoxication activities of fumaric acid in cultured cells. Gann 1981; 72(5): 777-782.

[150] Popovich DG, Sia SY, Zhang W and Lim ML. The color and size of chili peppers (*Capsicum annuum*) influence Hep-G2 cell growth. Int J Food Sci Nutr 2012; 24: 1-5.

[151] Al-Snafi AE. The pharmacological importance of *Capsicum* species (*Capsicum annuum* and *Capsicum frutescens*) grown in Iraq. Journal of Pharmaceutical Biology 2015; 5(3): 124-142.

[152] Motohashi N, Wakabayashi H, Kurihara T, Takada Y, Maruyama S, Sakagami H, Nakashima H, Tani S, Shirataki Y, Kawase M, Wolfard K and Molnár J. Cytotoxic and multidrug resistance reversal activity of a vegetable, 'Anastasia Red', a variety of sweet pepper. Phytother Res 2003; 17(4): 348-352.

[153] Dwivedi V, Shrivastava R, Hussain S, Ganguly C and Bharadwaj M. Cytotoxic potential of Indian spices (extracts) against esophageal squamous carcinoma cells. Asian Pac J Cancer Prev 2011; 12(8): 2069-2073.

[154] Sheikh Anwar M, Khan IN, Sarkar MI, Barua S, Kamal ATM and Hosen SM Z. Thrombolytic and cytotoxic effect of different herbal extracts. IJPSR 2011; 2(12): 3118-3121.

[155] Arpornsuwan T, Petvises S, Thim-uam A, Boondech A, and Roytrakul S. Effects of *Carthamus tinctorius* L. solvent extracts on anti-proliferation of human colon cancer (SW 620 cell line) via apoptosis and the growth promotion of lymphocytes. Songklanakarin J Sci Technol 2012; 34(1): 45-51.

[156] Al-Snafi AE. The chemical constituents and pharmacological importance of *Carthamus tinctorius* - An overview. Journal of Pharmaceutical Biology 2015; 5(3): 143-166.

[157] Loo WT, Cheung MN and Chow LW. The inhibitory effect of a herbal formula comprising ginseng and *Carthamus tinctorius* on breast cancer. Life Sci 2004; 76(2): 191-200.

[158] Lee JY, Chang EJ, Kim HJ, Park JH and Choi SW. Antioxidative flavonoids from leaves of *Carthamus tinctorius*. Arch Pharm Res 2002; 25(3): 313-319.

[159] Shi X, Ruan D, Wang Y, Ma L and Li M. Anti-tumor activity of safflower polysaccharide (SPS) and effect on cytotoxicity of CTL cells, NK cells of T739 lung cancer in mice. Zhongguo Zhong Yao Za Zhi 2010; 35(2): 215-218.

[160] Moazzem Hossen S M, Islam J, Shakhawat Hossain S M, Mofizur Rahman M and Ahmed F. Phytochemical and biological evaluation of MeOH extract of *Casuarina equisetifolia* (Linn.) leaves. European Journal of Medicinal Plants 2014; 4(8): 927-936.

[161] Al-Snafi AE. The pharmacological importance of *Casuarina equisetifolia*- An overview. International Journal of Pharmacological Screening Methods 2015; 5(1): 4-9.

[162] Herrmann F, Romero M R, Blazque A G, Kaufmann D, Ashour M L, Kahl S, Marin J J, Efferth T and Wink M. Diversity of pharmacological properties in Chinese and European mpdicinal Plants: Cytotoxicity, antiviral and antitrypanosomal screening of 82 herbal drugs. Diversity 2011; 3: 547-580.

[163] Al-Snafi AE. The chemical constituents and pharmacological importance of *Celosia* cristata – A review. J of Pharm Biology 2015; 5(4): 254-261.

[164] Khoobchandani M, Ojeswi BK, Sharma B, and SrivastavaMM. *Chenopodium album* prevents progression of cell growth and enhances cell toxicity in human breast cancer cell lines.Oxid Med Cell Longev 2009; 2(3): 160-165.

[165] Al-Snafi AE. The chemical constituents and pharmacological effects of *Chenopodium album*- An overview. International J of Pharmacological Screening Methods 2015; 5(1): 10-17.

[166] Jamil M, Mirza B, , Yasmeen A and Khan MA. Pharmacological activities of selected plant speciesand their phytochemical analysis. *Journal of Medicinal Plants Research*, 6(37), 2012, 5013-5022.

[167] Al-Snafi AE. The chemical constituents and pharmacological importance of *Chrozophora tinctoria*. Int J of Pharm Rev & Res 2015; 5(4): 391-396.

[168] Hossein R, Nazemieh H, Delazar A, Ali Reza NM amd Mehdipour S. The inhibitory effects of *Chrozophora tinctoria* extract on benzoyl peroxide-promoted skin carcinogenesis. Journal of Pharmaceutical Sciences 2006; 3: 39-42.

[169] Kumar S, Kapoor V, Gill K, Singh K, Xess I, Das SN and Dey S. Antifungal and antiproliferative protein from *Cicer arietinum*: a bioactive compound against emerging pathogens. Biomed Res Int 2014; 2014: 387203. doi: 10.1155/2014/387203.

[170] Al-Snafi AE. The medical Importance of *Cicer arietinum* - A review. IOSR Journal of Pharmacy 2016; 6(3): 29-40.

[171] Valligatla Sukanya SG and Gayathri G. Variability in the distribution of daidzein and genistein in legume sprouts and their anticancer activity with MCF-7 breast cancer cells. Academic Journal of Cancer Research 2014; 7 (3): 173-178.

[172] Al-Snafi AE. Medical importance of *Cichorium intybus* – A review IOSR Journal of Pharmacy 2016; 6(3): 41-56.

[173] Lee KT, Kim JI, Park HJ, Yoo KO, Han YN and Miyamoto KI. Differentiation-inducing effect of magnolialide, a 1β-hydroxyeudesmanolide isolated from *Cichorium intybus*, on human leukemia cells. 2000; 23(8): 1005-1007.

[174] Conforti F, Ioele G, Statti GA, Marrelli M, Ragno G and Menichini F. Antiproliferative activity against human tumor cell lines and toxicity test on Mediterranean dietary plants. Food and Chemical Toxicology 2008; 46(10): 3325-3332.

[175] Nawab A, Yunus M, Mahdi AA and Gupta S. Evaluation of anticancer properties of medicinal plants from the Indian sub-continent. Mol Cell Pharmacol 2011; 3(1): 21-29.

[176] Al-Akhras MA, Aljarrah K, Al-Khateeb H, Jaradat A, Al-Omari A, Al-Nasser A, Masadeh MM, Amin A, Hamza A, Mohammed K, Al Olama M and Daoud S. Introducing *Cichorium pumilum* as a potential therapeutical agent against drug-induced benign breast tumor in rats. Electromagn Biol Med 2012; 31(4): 299-309.

[177] Grossman S, Dovrat S, Gottlieb HE and Bergman M. Growth inhibitory activity of cucurbitacin glucosides isolated from *Citrullus colocynthis* on human breast cancer cells. Biochem Pharmacol 2007; 73(1): 56-67.

[178] Al-Snafi AE. Chemical constituents and pharmacological effects of *Citrullus colocynthis* - A review. IOSR Journal of Pharmacy 2016; 6(3): 57-67.

[179] Potter JD. Vegetables, fruit, and cancer. Lancet 2005; 366: 527-530.

[180] Al-Snafi AE. Nutritional value and pharmacological importance of *Citrus* species grown in Iraq. IOSR Journal of Pharmacy 2016; 6(8): 76-108.

[181] Tanaka Y, Makita H, Kawabata K, Mori H, Kakumoto M, Satoh K, Hara A, Sumida T, Fukutani K, Tanaka T and Ogawa H. Modulation of N-methyl-N-nitrosamine-induced rat oesophageal tumorigenesis by dietary feeding of diosmin and hesperidin, both alone and in combination. Carcinogenesis. Agricultural and Food Chemistry 1997; 18: 761-769.

[182] Tanaka Y, Makita H, Kawabata K, Mori H, Kakumoto M, Satoh K, Hara A, Sumida T, Fukutani K, Tanaka T and Ogawa H. Chemoprevention of azoxymethane-induced rat colon carcinogenesis by the naturally occurring flavonoids, diosmin and hesperidin. Carcinogenesis. 1997; 18: 957-965.

[183] Gharagozloo M, Doroudchi M and Ghaderi A. Effects of Citrus aurantifolia concentrated extract on the spontaneous proliferation of MDA-MB-453 and RPMI-8866 tumor cell linesmore. Phytomedicine 2002; 9: 475-477.

[184] Patil JR. Studies on isolation and characterization of bioactive compounds in lime [*Citrus aurantifolia* (Christm) Swingle], their antioxidant and anticancer properties. PhD thesis, University of Agricultural Sciences, Dharwad 2009.

[185] Patil JP, Jayaprakasha GK, Murthy KNC, Tichy EE, Chetti MB and Patil BS. Apoptosis-mediated proliferation inhibition of human colon cancer cells by volatile principles of *Citrus aurantifolia*. Food Chemistry 2009; 114: 1351-1358.

[186] Entezari M, Majd A, Falahian F, Mehrabian S, Hashemi M and Lajimi AA. Antimutagenicity and anticancer effects of *Citrus medica* fruit Juice. Acta Medica Iranica 2009; 47(5): 373-377.

[187] Mazaki M, Ishii T and Uyeta M. Mutagenicity of hydrolysates of citrus fruit juices. Mutat Res 1982; 101(4): 283-291.

[188] Quignard ELJ. Screening of plants found in Amazonas state for lethality towards brine shrimp. Acta Amazonica 2003; 33: 93-104.

[189] KunduSen S, Bala A, Kar B, Bhattacharya S, Mazumder UK, Gupta M and Haldar PK. Antitumor potential of *Citrus limetta* fruit peel in Ehrlich ascites carcinoma bearing Swiss albino mice. Alternative Medicine Studies 2012; 2(e10): 48-51.

[190] Jacob R, Hasegawa S and Gary Manners. The potential of *Citrus limonoids* as anticancer agents. Perishables Handling Quarterly 2000; 102: 6-8.

[191] Al-Ashaal HA and El-Sheltawy ST. Antioxidant capacity of hesperidin from citrus peel using electron spin resonance and cytotoxic activity against human carcinoma cell lines. Pharm Biol 2011; 49(3): 276-282.

[192] Rajalingam K, Renju GL, Balakrishnan S and Manoharan S. Effect of Clerodendron inerme on Erythrocyte Membrane Integrity During 7,12- dimethylbenz(a)anthracene Induced Skin Carcinogenesis in Swiss Albino Mice. Asian Journal of Scientific Research 2008; 1: 246-255.

[193] Al-Snafi AE. Chemical constituents and pharmacological effects of *Clerodendrum inerme*- A review. SMU Medical Journal 2016; 3(1): 129-153.

[194] Renju GL, Manohanan S, Balakrishan S and Senthil N. Chemopreventive and antilipidperoxidative potential of *Clerodendron inerme* (L) Gaertn in 7,12-dimethylbenz(a)

[195] Manoharan S, Kavitha K, Senthil N and Renju GL. Evaluation of anticarcinogenic effects of *Clerodendron inerme* on 7,12-dimethylbenz(a) anthracene-induced hamster buccal pouch carcinogenesis. Singapore Med J 2006; 47(12): 1038-1043.

[196] Shyam kumar B and Ishwar Bhat K. *In-vitro* cytotoxic activity studies of *Clitoria ternatea* Linn flower extracts. International Journal of Pharmaceutical Sciences Review and Research 2011; 6(2): 120-121.

[197] Al-Snafi AE. Pharmacological importance of *Clitoria ternatea* – A review. IOSR Journal of Pharmacy 2016; 6(3): 68-83.

[198] Rahman AS, Iqbal A, Saha R, Talukder N, Khaleque S and Ali HA. Bioactivity guided cytotoxic activity of *Clitoria ternatea* utilizing brine shrimp lethality bioassay. Bangladesh J Physiol Pharmacol 2006; 22(1/2) :18-21.

[199] Ramaswamy V, Varghese N and Simon A. An investigation on cytotoxic and antioxidant properties of *Clitoria ternatea* L. International Journal of Drug Discovery 2011; 3(1): 74-77.

[200] Jacob L and Latha MS. Anticancer activity of *Clitoria ternatea* Linn. against Dalton's lymphoma. International Journal of Pharmacognosy and Phytochemical Research 2012; 4(4); 207-212.

[201] Sadeghi-aliabadi H, Ghasemi N and Kohi M. Cytotoxic effect of *Convolvulus arvensis* extracts on human cancerous cell line. Research in Pharmaceutical Sciences 2008; 3(1): 31-34.

[202] Al-Snafi AE. The chemical constituents and pharmacological effects of *Convolvulus arvensis* and *Convolvulus scammonia*- A review. IOSR Journal of Pharmacy 2016; 6(6): 64-75.

[203] Saleem M, Imran Qadir M, Ahmad B, Saleem U, Naseer F, Schini-Kerth V, Ahmad M and Hussain K. Cytotoxic effect of ethanol extract of *Convolvulus arvensis* L (Convolvulaceae) on lymphoblastic leukemia Jurkat cells Tropical Journal of Pharmaceutical Research 2014; 13 (5): 705-709.

[204] Al-Asady AAB, Suker DK and Hassan KK. Cytotoxic and cytogenetic effects of *Convolvulus arvensis* extracts on rhabdomyosarcoma (RD) tumor cell line *in vitro*. J Med Plants Res 2014; 8(15): 588-598.

[205] Saleem M, Naseer F, Ahmad S, Baig K and Irshad I. *In vivo* cytotoxic effects of methanol extract of *Convolvulus arvensis* on 7-12-dimethyl benz(a)antheracene (DMBA) induced skin carcinogenesis. Afr J Pharm Pharmacol 2015; 9(12): 397-404.

[206] Zenia TA and Hade I. Effects of *Convolvulus scammonia* extract on mitosis division and on cancer cell line in mice. Diyala Journal for Pure Sciences 2011; 7(1): 14-23.

[207] Tawfeeq AT, Hassan IH, Kadhim HM and Abdul Haffid ZT. *Convolvulus scammonia* crude alkaloids extract induces apoptosis through microtubules destruction in mice hepatoma H22 cell line. Iraqi Journal of Cancer and Medical Genetics 2012; 5(2): 134-146.

[208] Hade I and Zenia TA. Effect alkaloid and aqueous extraction of *Convolvulus scammonia* on microtubules of CHO cell line (China hamster). Diyala Journal for Pure Sciences 2011; 7(3): 48-58.

[209] N'danikou S and Achigan-Dako EG. 2011. *Corchorus aestuans* L. Record from PROTA4U. Brink, M. & Achigan-Dako, E.G. PROTA (Plant Resources of Tropical Africa /

[210] Al-Snafi AE. The constituents and pharmacology of *Corchorus aestuans*: A review. The Pharmaceutical and Chemical Journal 2016; 3(4): 208-214.

[211] Chen JC, Chang NW, Chung JG and Chen KC. Saikosaponin-A induces apoptotic mechanism in human breast MDA-MB-231 and MCF-7 cancer cells. Am J Chin Med 2003; 31(3): 363-377.

[212] Mallick S, Pal BC, Kumar D, Chatterjee N, Das S and Saha KD. Effect of corchorusin-D, a saikosaponin like compound, on B16F10 melanoma cells (*in vitro* and *in vivo*). Journal of Asian Natural Products Research 2013; 15(11): 1197-1203.

[213] Mallick S, Ghosh P, Samanta SK, Kinra S, Pal BC, Gomes A and Vedasiromoni JR. Corchorusin-D, a saikosaponin-like compound isolated from Corchorus acutangulus Lam., targets mitochondrial apoptotic pathways in leukemic cell lines (HL-60 and U937). Cancer Chemother Pharmacol 2010; 66(4): 709-719.

[214] Mallick S, Pal BC, Vedasiromoni JR, Kumar D and Saha KD. Corchorusin-D directed apoptosis of K562 cells occurs through activation of mitochondrial and death receptor pathways and suppression of AKT/PKB pathway. Cell Physiol Biochem 2012; 30(4): 915-926.

[215] Rume JM. Phytochemical, antimicrobial and biological investigations of methanolic extract of leaves of *Corchorus capsularis*. Thesis for bachelor degree of pharmacy, East West University 2010.

[216] Al-Snafi AE. The contents and pharmacological importance of *Corchorus capsularis*- A review. IOSR Journal of Pharmacy 2016; 6(6): 58-63.

[217] Bogavac M, Karaman M, Janjušević L, Sudji J, Radovanović B, Novaković Z, Simeunović J and Božin B. Alternative treatment of vaginal infections - *in vitro* antimicrobial and toxic effects of *Coriandrum sativum* L. and *Thymus vulgaris* L. essential oils. J Appl Microbiol 2015; 119(3): 697-710.

[218] Tang EL, Rajarajeswaran J, Fung SY and Kanthimathi MS. Antioxidant activity of *Coriandrum sativum* and protection against DNA damage and cancer cell migration. BMC Complement Altern Med 2013; 13: 347.

[219] Omez-Flores R, Hernández-Martínez H, Tamez- Guerra P, Tamez-Guerra R, Quintanilla-Licea R, Monreal- Cuevas R and Rodríguez-Padilla C. Antitumor and immunomodulating potential of *Coriandrum sativum*, *Piper nigrum* and *Cinnamomum zeylanicum*. Journal of Natural

[220] Rodriguez L, Ramirez M, Badillo M, León- Buitimea A and Reyes-Esparza J. Toxicological evaluation of *Coriandrum sativum* (Cilantro) using *in vivo* and *in vitro* models. The FASEB Journal 2006; 20: A645.

[221] Amal M. Moustafa Y, Khodair AI and Saleh MA. Structural elucidation and evaluation of toxicity and antitumor activity of cardiac glycosides isolated from *Leptadenia pyrotechnica*. Pharmaceutical Biology 2009; 47(9): 826-834.

[222] Al-Snafi AE. The pharmacological and toxicological effects of *Coronilla varia* and *Coronilla scorpioides*: A Review. The Pharmaceutical and Chemical Journal 2016, 3(2): 105-114.

[223] Usta C, Yildirim B and Turker AU. Antibacterial and antitumour activities of some plants grown in Turkey. Biotechnology & Biotechnological Equipment 2014; 28(2): 306-315.

[224] Al-Snafi AE. The pharmacological and toxicological effects of *Coronilla varia* and *Coronilla scorpioides*: A Review. The Pharmaceutical and Chemical Journal 2016, 3(2): 105-114.

[225] Sattari FL, Nemati F, Mirzanegad S and Mahdavi SV. Chemical composition of essential oil and *in vitro* antibacterial and anticancer activity of the hydroalcolic extract from *Coronilla varia.* The 17th National and 5th Iranian Biology Conference, Iran- Kerman 2012

[226] Dehpour AA, Eslami B, Rezaie S, Hashemian SF, Shafie F and Kiaie M. Chemical composition of essential oil and *in vitro* antibacterial and anticancer activity of the hydroalcolic extract from *Coronilla varia*. World Academy of Science, Engineering and Technology Pharmacological and Pharmaceutical Sciences 2014; 1(12): 1414-1417.

[227] Hembree JA, Chang CJ, McLaughlin JL, Peck G, and Cassady JM. Potential antitumor agents: A cytotoxic cardenolide from *Coronilla varia*. J Nat Prod 1979; 42: 293-298.

[228] Khan S. Phytochemical investigation on constituents of *Cotoneaster racemiflora* Desf and *Buddleja crispa* Benth along with synthesis of macrocyclic β-sheet peptides. PhD thesis, Department of Chemistry, University of Karachi-Pakistan 2008.

[229] Khan S, Rehman A, Riaz N and Malik A. Isolation studies on *Cotoneaster racemiflora*. J Chem Soc Pakistan 2007; 29(6): 620-623.

[230] Abdullaev FI and Frenkel GD. The effect of saffron on intracellular DNA, RNA and protein synthesis in malignant and non-malignant human cells. Biofactors 1992; 4(1): 43-45.

[231] Abdullaev FI. Cancer chemopreventive and tumoricidal properties of saffron (*Crocus sativus* L.). Exp Biol Med (Maywood) 2002; 227(1): 20-25.

[232] Al-Snafi AE. The pharmacology of *Crocus sativus*- A eview. IOSR Journal of Pharmacy 2016; 6(6): 8-38.

[233] Aung HH, Wang CZ, Ni M, Fishbein A, Mehendale SR, Xie JT, Shoyama CY and Yuan CS. Crocin from *Crocus sativus* possesses significant anti-proliferation effects on human colorectal cancer cells. Exp Oncol 2007; 29(3): 175-180.

[234] Samarghandian S, Boskabady MH and Davoodi S. Use of *in vitro* assays to assess the potential antiproliferative and cytotoxic effects of saffron (*Crocus sativus* L.) in human lung cancer cell line. Pharmacogn Mag 2010; 6(24): 309-314.

[235] Samarghandian S, Tavakkol Afshari J and Davoodi S. Suppression of pulmonary tumor promotion and induction of apoptosis by *Crocus sativus* L. extraction. Appl Biochem Biotechnol 2011; 164(2): 238-247.

[236] Bajbouj K, Schulze-Luehrmann J, Diermeier S, Amin A and Schneider-Stock R. The anticancer effect of saffron in two p53 isogenic colorectal cancer cell lines. BMC Complement Altern Med 2012; 12: 69-78.

[237] Tavakkol-Afshari J, Brook A and Mousavi SH. Study of cytotoxic and apoptogenic properties of saffron extract in human cancer cell lines. Food Chem Toxicol 2008; 46(11): 3443-3447.

[238] Feizzadeh B, Afshari JT, Rakhshandeh H, Rahimi A, Brook A and Doosti H. Cytotoxic effect of saffron stigma aqueous extract on human transitional cell carcinoma and mouse fibroblast. Urol J 2008; 5(3): 161-167.

[239] Abdullaev FI and Frenkel GD. The effect of saffron on intracellular DNA, RNA and protein synthesis in malignant and non-malignant human cells. Biofactors 1992; 4(1): 43-45.

[240] Abdullaev FI. Cancer chemopreventive and tumoricidal properties of saffron (*Crocus sativus* L.). Exp Biol Med (Maywood) 2002; 227(1): 20- 25.

[241] Nair SC, Kurumboor SK and Hasegawa JH. Saffron chemoprevention in biology and medicine: a review. Cancer Biother 1995; 10(4): 257-264.

[242] D'Alessandro AM, Mancini A, Lizzi AR, De Simone A, Marroccella CE, Gravina GL, Tatone C and Festuccia C. *Crocus sativus* stigma extract and its major constituent crocin possess significant antiproliferative properties against human prostate cancer. Nutr Cancer 2013; 65(6): 930-942.

[243] Bathaie SZ, Miri H, Mohagheghi MA, Mokhtari- Dizaji M, Shahbazfar AA and Hasanzadeh H. Saffron aqueous extract inhibits the chemicallyinduced gastric cancer progression in the Wistar albino rat. Iran J Basic Med Sci 2013; 16(1): 27-38.

[244] Samarghandian S, Borji A, Farahmand SK, Afshari R and Davoodi S. *Crocus sativus* L. (saffron) stigma aqueous extract induces apoptosis in alveolar human lung cancer cells through caspasedependent pathways activation. Biomed Res Int 2013; doi: 10.1155/2013/417928.

[245] Nair SC, Pannikar B and Panikkar KR. Antitumour activity of saffron (*Crocus sativus*). Cancer Lett 1991; 57(2): 109-114.

[246] 246-Das I, Das S and Saha T. Saffron suppresses oxidative stress in DMBA- induced skin carcinoma: A histopathological study. Acta histochemica 2010; 112: 317-327.

[247] Xia D. Ovarian cancer HO-8910 cell apoptosis induced by crocin *in vitro*. Nat Prod Commun 2015; 10(2): 249-252.

[248] Allahghadri T, Rasooli I, Owlia P, Nadooshan MJ, Ghazanfari T, Taghizadeh M and Astaneh SD. Antimicrobial property, antioxidant capacity, and cytotoxicity of essential oil from cumin produced in Iran. J Food Sci 2010; 75(2): H54-61.

[249] Al-Snafi AE. The pharmacological activities of *Cuminum cyminum* - A review. IOSR Journal of Pharmacy 2016; 6(6): 46-65.

[250] Gagandeep, Dhanalakshmi S, Méndiz E, Rao AR and Kale RK. Chemopreventive effects of *Cuminum cyminum* in chemically induced forestomach and uterine cervix tumors in murine model systems. Nutr Cancer 2003; 47(2): 171-180.

[251] Parthasarathy VA, Chempakam B and Zachariah TJ. Chemistry of spices. CAB International 2008: 211-226.

[252] Aruna, K and Sivaramakrishnan VM. Anticarcinogenic effects of some Indian plant products. Food and Chemical Toxicology 1992; 30(11): 953–956.

[253] Loizzo MR, Tundis R, Menichini F, Saab AM, Statti GA and Menichini F. Antiproliferative effects of essential oils and their major constituents in human renal adenocarcinoma and amelanotic melanoma cells. Cell Prolif 2008; 41(6): 1002-1012.

[254] Al-Snafi AE. Medical importance of *Cupressus sempervirens*- A review. IOSR Journal of Pharmacy 2016; 6(6): 66-76.

[255] Verma V, Sharma V, Singh V, Kumar R, Khan MF, Singh AK, Sharma R, Arya KR, Maikhuri JP, Dalela D, Maurya R and Gupta G. Labda-8 (17),12,14-trien-19-oic acid contained in fruits of *Cupressus sempervirens* suppresses benign prostatic hyperplasia in rat and *in vitro* human models through inhibition of androgen and STAT-3 signaling. Phytother Res 2014; 28(8): 1196-203.

[256] Biswas SK, Chowdhury, A Das J, Karmakar UK, Raihan SZ, Das AC, Hannan MA, Dinar MA, Monsur Hassan MJ, Hossain M I and Farhad MR. Phytochemical investigation and chromatographic evaluation with antimicrobial and cytotoxic potentials of *Cuscuta epithymum*. International Journal of Pharmacology 2012; 8(5): 422-427.

[257] Al-Snafi AE. Medical importance of *Cupressus sempervirens*- A review. IOSR Journal of Pharmacy 2016; 6(6): 66-76.

[258] Jafarian A, Ghannadi A and Mohebi B. Cytotoxic effects of chloroform and hydroalcoholic extracts of aerial parts of*Cuscuta chinensis* and*Cuscuta epithymum*on Hela, HT29 and MDA-MB-468 tumor cells. Res Pharm Sci 2014; 9(2): 115-122.

[259] Pacifico S, Gallicchio M, Fiorentino A, Fischer A, Meyer U and Stintzing FC. Antioxidant properties and cytotoxic effects on human cancer cell lines of aqueous fermented and lipophilic quince (*Cydonia oblonga* Mill.) preparations. Food Chem Toxicol 2012; 50(11): 4130-4135.

[260] Al-Snafi AE. The medical importance of *Cydonia oblonga*- A review. IOSR Journal of Pharmacy 2016; 6(6): 87-99.

[261] Carvalho M, Silva BM, Silva R, Valentão P, Andrade PB and Bastos ML. First report on *Cydonia oblonga* Miller anticancer potential: differential antiproliferative effect against human kidney and colon cancer cells. J Agric Food Chem 2010; 58(6): 3366-3370.

[262] Krishnamoorthy M and Ashwini P. Anticancer activity of *Cynodon dactylon* L extract on Ehrlich ascites carcinoma. J Environ Res Dev 2011;

[263] Al-Snafi AE. Chemical constituents and pharmacological effects of *Cynodon dactylon*- A review. IOSR Journal of Pharmacy 2016; 6(7): 17-31.

[264] Saroja M and Annapoorani S. Antitumor activity of methanolic extract of *Cynodon dactylon* leaves against Ehrlich ascites induced carcinoma in mice.

[265] Albert-Baskar A and Ignacimuthu S. Chemopreventive effect of *Cynodon dactylon* (L) Pers extract against DMH-induced colon carcinogenesis in experimental animals. Exp Toxicol Pathol 2010; 62(4): 423-431.

[266] Ahmad M, Mahayrookh, Mehjabeen, Bin Rehman A and Jahan N. Analgesic, antimicrobial and cytotoxic effect of *Cyperus routunds* ethanolic extract. Pakistan Journal of Pharmacology 2012; .29(2): 7-13.

[267] Al-Snafi AE. A review on *Cyperus rotundus* A potential medicinal plant. IOSR Journal Of Pharmacy 2016; 6(7): 32-48.

[268] Bisht A, Bisht GRS, Singh M, Gupta R and Singh V. Chemical compsition and antimicrobial activity of essential oil of tubers of *Cyperus rotundus* Linn. collected from Dehradun (Uttarakhand). International Journal of Research in Pharmaceutical and Biomedical Sciences 2011; 2(2); 661-665.

[269] Ahn JH, Lee TW, Kim KH, Byun H, Ryu B, Lee KT, Jang DS and Choi JH. 6-acetoxy cyperene, a patchoulane-type sesquiterpene isolated from *Cyperus rotundus* rhizomes induces caspasedependent apoptosis in human ovarian cancer cells. Phytother Res 2015,10. doi: 10.1002/ptr.5385.

[270] Park SE, Shin WT, Park C, Hong SH, Kim GY, Kim SO, Ryu CH, Hong SH and Choi YH. Induction of apoptosis in MDA-MB-231 human breast carcinoma cells with an ethanol extract of *Cyperus rotundus* L. by activating caspases. Oncol Rep 2014; 32(6): 2461-2470.

[271] Kayed AM, EL- Sayed ME and El-Hela AA. New epoxy megastigmane glucoside from *Dactyloctenium aegyptium* L. P. Beauv Wild (Crowfootgrass). Journal of Scientific and Innovative Research 2015; 4(6): 237-244.

[272] Al-Snafi AE. The pharmacological potential of *Dactyloctenium aegyptium*- A review. Indo Am J P Sci 2017; 4(01): 153-159.

[273] Hansakul P, Ngamkitidechakul C, Ingkaninan K, Sireeratawong S, and Panunto W. Apoptotic induction activity of *Dactyloctenium aegyptium* (L.) P.B. and *Eleusine indica* (L.) Gaerth. extracts on human lung and cervical cancer cell lines. Songklanakarin J Sci Technol 2009; 31(3): 273-279.

[274] Pan Y, Wang X and Hu X. Cytotoxic withanolides from the flowers of *Datura metel*. J Nat Prod 2007; 70(7): 1127-1132.

[275] Al-Snafi AE. Medical importance of *Datura fastuosa* (syn: *Datura metel*) and *Datura stramonium* - A review. IOSR Journal of Pharmacy 2017; 7(2): 43-58.

[276] Roy S, Pawar S and Chowdhary A. Evaluation of *in vitro* cytotoxic and antioxidant activity of *Datura metel* Linn. and *Cynodon dactylon* Linn. extracts.Pharmacognosy Res 2016; 8(2): 123-127.

[277] Bellila A, Tremblay C, Pichette A, Marzouk B, Mshvildadze V, Lavoie S and Legault J. Cytotoxic activity of withanolides isolated from Tunisian *Datura metel* L.Phytochemistry 2011; 72(16): 2031-2036.

[278] European Food Safety authority. Tropane alkaloids (from *Datura* sp.) as undesirable substances in animal feed. The EFSA Journal 2008; 691: 1-55.

[279] Zgheib P, Daher CF, Mroueh M,· Nasrallah A, Taleb RI and El-Sibai M. *Daucus carota* pentane/diethyl ether fraction inhibits motility and reduces invasion of cancer cells. Chemotherapy 2014; 60: 302-309.

[280] Al-Snafi AE. Nutritional and therapeutic importance of *Daucus carota*- A review. IOSR Journal of Pharmacy 2017; 7(2): 72-88.

[281] Tawil M, Bekdash A, Mroueh M, Daher CF and Abi-Habib RJ. Wild carrot oilextract is selectively cytotoxic to human acute myeloid leukemia cells. Asian Pac J Cancer Prev 2015; 16(2): 761-767.

[282] Zeinab RA, Mroueh M, Diab-Assaf M, Jurjus A, Wex B, Sakr A and Daher CF. Chemopreventive effects of wild carrot oil against 7,12-dimethyl benz(a)anthracene-induced squamous cell carcinoma in mice. Pharm Biol 2011; 49(9): 955-961.

[283] Oung JF, Duthie SJ, Milne L, Christensen LP, Duthie GG and Bestwick CS. Biphasic effect of falcarinol on caco-2 cell proliferation, DNA damage, and apoptosis. J Agric Food Chem2007; *55*(3): 618-623.

[284] Zaini RG, Brandt K, Clench MR and Le Maitre CL. Effects of bioactive compounds from carrots (*Daucus carota* L.), polyacetylenes, beta-carotene and lutein on human lymphoid leukaemia cells. Anticancer Agents Med Chem 2012; 12(6): 640- 652.

[285] Kobaek-Larsen M, Christensen LP, Vach W, Ritskes-Hoitinga J and Brandt K. Inhibitory effects of feeding with carrots or (-)-falcarinol on development of azoxymethane-induced preneoplastic lesions in the rat colon. J Agric Food Chem 2005; 53(5): 1823-1827.

[286] Zaini R, Clench MR and Le Maitre CL. Bioactive chemicals from carrot (Daucus *carota*) juice extracts for the treatment of leukemia. J Med Food 2011; 14(11): 1303-1312.

[287] Kumarasamy Y, Nahar L, Byres M, Delazar A and Sarker SD. The assessment of biological activities associated with the major constituents of the methanol extract of 'wild carrot' (*Daucus carota* L) seeds. J Herb Pharmacother 2005; 5(1): 61-72.

[288] Shebaby WN, Mroueh M, Bodman-Smith K, Mansour A, Taleb RI, Daher CF and El-Sibai M. *Daucus carota* pentane-based fractions arrest the cell cycle and increase apoptosis in MDA-MB-231 breast cancer cells. BMC Complement Altern Med2014; 14: 387.

[289] Shebaby WN, Bodman-Smith KB, Mansour A, Mroueh M, Taleb RI, El-Sibai M and Daher CF. *Daucus carota* pentane-based fractions suppress proliferation and induce apoptosis in human colon adenocarcinoma HT-29 cells by inhibiting the MAPK and PI3K pathways. J Med Food 2015; 18(7): 745-752.

[290] Shebaby WN, El-Sibai M, Smith KB, Karam MC, Mroueh M and Daher CF. The antioxidant and anticancer effects of wild carrot oil extract. Phytother Res 2013; 27(5): 737-744.

[291] Khalil N, Ashour M, Singab AN and Salama O. Chemical composition and biological activity of the essential oils obtained from yellow and red Carrot fruits cultivated in Egypt. IOSR Journal of Pharmacy and Biological Sciences 2015; 10(2): 13-19.

[292] Rajbhandari M, Mentel R, Jha PK, Chaudhary RP, Bhattarai S, Gewali MB, Karmacharya N, Hipper M and Lindequist U. Antiviral activity of some plants used in Nepalese traditional medicine. Evid Based Complement Alternat Med 2009; 6(4): 517–522.

[293] Choedona T, Dolmab D and Kumara V.Pro-apoptotic and anticancer properties of Thapring – A Tibetan herbal formulation. Journal of Ethnopharmacology 2011; 137: 320– 326.

[294] Golla UR, Gajam PK, Mohammad AR, Ashok KK, Solomon SRB. Assessment of bioactivity of *Desmostachya bipinnata* (L.) Stapf using brine shrimp (*Artemia salina*) lethality assay. Pharmacologyonline 2011; 3: 982-990.

[295] Al-Snafi AE. Pharmacological and therapeutic importance of *Desmostachya bipinnata*- A review. Indo Am J P Sci 2017; 4(01): 60-66.

[296] Sabina S, Ji-Hae P, Dae-Young L *et al*. A new xanthene from *Desmostachya bipinnata* (L.) Stapf: Inhibits signal transducer and activator of transcription 3 (STAT3) and low-density lipoprotein-oxidation. Journal of The Korean Society Applied Biological Chemistry 2011; 54(2): 303-311.

[297] Rahate KP, Rajasekran A and Arulkumaran K. Potential of *Desmostachya bipinnata* Stapf (poaceae) root extracts in inhibition of cell proliferation of cervical cancer cell lines. International Journal of Research in Pharmaceutical Sciences 2012; 3(1): 5-11.

[298] Martineti V, Tognarini I, Azzari C, *et al*. Inhibition of *in vitro* growth and arrest in the G0/G1 phase of HCT8 line human colon cancer cells by kaempferide triglycoside from *Dianthus caryophyllus*. Phytother Res2010; 24: 1302–1308.

[299] Von Mallinckrodt B, Thakur M, Weng A, Gilabert-Oriol R, Dürkop H, Brenner W, Lukas M, Beindorff N, Melzig MF and Fuchs H. Dianthin-EGF is an effective tumor targeted toxin in combination with saponins in a xenograft model for colon carcinoma.Future Oncol 2014; 10(14): 2161-2175.

[300] Lindholm P, Gullbo J, Claeson P, Göransson U, Johansson S, Backlund A, Larsson R and Bohlin L. Selective cytotoxicity evaluation in anticancer drug screening of fractionated plant extracts. J Biomol Screen 2002; 7(4): 333-340.

[301] Al-Snafi AE. Phytochemical constituents and medicinal properties of *Digitalis lanata* and *Digitalis purpurea* - A review. Indo Am J P Sci 2017; 4(02): 225-234.

[302] Johansson S, Lindholm P, Gullbo J, Larsson R, Bohlin L and Claeson P. Cytotoxicity of digitoxin and related cardiac glycosides in human tumor cells. Anticancer Drugs2001; 12(5): 475-483.

[303] Kuroda M, Kubo S, Matsuo Y, Atou T, Satoh J, Fujino T, Hayakawa M and Mimaki Y. New cardenolide glycosides from the seeds of*Digitalispurpurea* and their cytotoxic activity. Biosci Biotechnol Biochem 2013; 77(6): 1186-1192.

[304] Dimas K, Papadopoulou N, Baskakis C, Prousis KC, Tsakos M, Alkahtani S, Honisch S, Lang F, Calogeropoulou T, Alevizopoulos K and Stournaras C. Steroidal cardiac Na^+/K^+ ATPase inhibitors exhibit strong anti-cancer potential *in vitro* and in prostate and lung cancer xenografts *in vivo*. Anticancer Agents Med Chem 2014; 14(5): 762-770.

[305] Haux J, Klepp O, Spigset O and Tretli S. Digitoxin medication and cancer; case control and internal dose-response studies. BMC Cancer 2001; 1: 11.

[306] Lopez-Lazaro M *et al*. Digitoxin inhibits the growth of cancer cell lines at concentrations commonly found in cardiac patients. J Nat Prod 2005; 68: 1642–1645

[307] McConkey DJ, Lin Y, Nutt LK, Ozel HZ and Newman RA. Cardiac glycosides stimulate Ca^{2+} increases and apoptosis in androgen-independent, metastatic human prostate adenocarcinoma cells. Cancer Res 2000; 60: 3807–3812.

[308] Huang YT, Chueh SC, Teng CM and Guh JH. Investigation of ouabain-induced anticancer effect in human androgen-independent prostate cancer PC-3 cells. Biochem Pharmacol 2004; 67: 727–733.

[309] Yeh JY, Huang WJ, Kan SF and Wang PS. Effects of bufalin and cinobufagin on the proliferation of androgen dependent and independent prostate cancer cells. Prostate 2003; 54: 112–124.

[310] Newman RA *et al.* Oleandrin-mediated oxidative stress in human melanoma cells. J Exp Ther Oncol 2006; 5: 167–181.

[311] Newman RA *et al.* Autophagic cell death of human pancreatic tumor cells mediated by oleandrin, a lipid-soluble cardiac glycoside. Integr Cancer Ther 2007; 6: 354–364.

[312] Mijatovic T *et al.* The cardenolide UNBS1450 is able to deactivate nuclear factor κB-mediated cytoprotective effects in human non-small cell lung cancer cells. Mol Cancer Ther 2006; 5: 391–399.

[313] Watabe M, Kawazoe N, Masuda Y, Nakajo S and Nakaya K. Bcl-2 protein inhibits bufalin-induced apoptosis through inhibition of mitogen-activated protein kinase activation in human leukemia U937 cells. Cancer Res 1997; 57: 3097–3100.

[314] Frese S *et al.* Cardiac glycosides initiate Apo2L/TRAIL-induced apoptosis in non-small cell lung cancer cells by up-regulation of death receptors 4 and 5. Cancer Res 2006; 66: 5867–5874.

[315] Elbaz HA, Stueckle TA, Wang HY, O'Doherty GA, Lowry DT, Sargent LM, Wang L and Dinu CZ, Rojanasakul Y. Digitoxin and a synthetic monosaccharide analog inhibit cell viability in lung cancer cells. Toxicology and Applied Pharmacology 2012; 258: 51-60.

[316] Raghavendra PB, Sreenivasan Y, Ramesh GT and Manna SK. Cardiac glycoside induces cell death via FasL by activating calcineurin and NF-AT, but apoptosis initially proceeds through activation of caspases. Apoptosis 2007; 12: 307–318.

[317] Masuda Y *et al.* Bufalin induces apoptosis and influences the expression of apoptosis-related genes in human leukemia cells. Leuk Res 1995; 19: 549–556.

[318] Daniel D, Susal C, Kopp B, Opelz G and Terness P. Apoptosis-mediated selective killing of malignant cells by cardiac steroids: maintenance of cytotoxicity and loss of cardiac activity of chemically modified derivatives. Int Immunopharmacol 2003, 3: 1791–1801.

[319] Jing Y *et al.* Selective inhibitory effect of bufalin on growth of human tumor cells *in vitro*: association with the induction of apoptosis in leukemia HL-60 cells. Jpn J Cancer Res 1994; 85: 645–651.

[320] Kulikov A, Eva A, Kirch U, Boldyrev A and Scheiner-Bobis G. Ouabain activates signaling pathways associated with cell death in human neuroblastoma. Biochim Biophys Acta 2007; 1768: 1691–1702.

[321] Kawazoe N, Watabe M, Masuda Y, Nakajo S and Nakaya K. Tiam1 is involved in the regulation of bufalin-induced apoptosis in human leukemia cells. Oncogene 1999; 18: 2413–2421.

[322] Stenkvist B. Cardiac glycosides and breast cancer. Lancet 1979; 1: 563.

[323] Shafek RE, Shafik NH, Michael HN, El-Hagrassi AM and Osman AF. Phytochemical studies and biological activity of *Dodonaea viscosa* flowers extract. Journal of Chemical and Pharmaceutical Research 2015; 7(5): 109-116.

[324] Al-Snafi AE. A review on *Dodonaea viscosa*: A potential medicinal plant. IOSR Journal of Pharmacy 2017; 7(2): 10-21.

[325] Habib MAM, Hasan R, Nayeem J, Uddin N and Rana S. Anti-inflammatory, antioxidant and cytotoxic potential of methanolic extract of two Bangladeshi bean *Lablab purpureus* L. sweet white and purple. IJPSR 2012; 3(3): 776-781.

[326] Al-Snafi AE. The pharmacology and medical importance of *Dolichos lablab* (*Lablab purpureus*)- A review. IOSR Journal of Pharmacy 2017; 7(2): 22-30.

[327] Nasrin F, Bulbu IJ, Begum Y and Khanum S. *In vitro* antimicrobial and cytotoxicity screening of n-hexane, chloroform and ethyl acetate extracts of *Lablab purpureus* (L.) leaves. Agric Biol J N Am 2012; 3(2): 43-48.

[328] Hefnawy HM E , El Molla SG, Abdel Motaal AA and El Fishawy AM. Bioassay-guided fractionation and cytotoxic activity of flavonoids from *Echinochloa crus-galli* L. (Barnyard Grass). Planta Med 2011; 77 - PL62.

[329] Al-Snafi AE. Pharmacology of *Echinochloa crus-galli* - A review. Indo Am J P Sci 2017; 4(01): 117-122.

[330] El Molla SG, Motaal AA , El Hefnawy H and El Fishawy A. Cytotoxic activity of phenolic constituents from *Echinochloa crus-galli* against four human cancer cell lines. Rev Bras Farmacogn 2016; 26(1): http: //dx.doi.org/10.1016/j.bjp.2015.07.026

[331] Cetojevic-Simin DD, Canadanovic-Brunet JM, Bogdanovic GM, Djilas SM, Cetkovic GS, Tumbas VT and Stojiljkovic BT. Antioxidative and antiproliferative activities of different horsetail (*Equisetum arvense* L.) extracts. J Med Food 2010; 13(2): 452-459.

[332] Al-Snafi AE. The pharmacology of *Equisetum arvense*- A review. IOSR Journal of Pharmacy 2017; 7(2): 31-42.

[333] Alexandru V, Petrusca DN and Gille E: Investigation of pro-apoptotic activity of *Equisetum arvense* L. water extract on human leukemia U 937 cells. Romanian Biotechnological Letters2007; 12(2): 3139-3147.

[334] Trouillasa P, Callistea CA, Allaisc DP, Simonb A, Marfaka A, Delageb C and Durouxa JL. Antioxidant, anti-inflammatory and antiproliferative properties of sixteen water plant extracts used in the Limousin countryside as herbal teas. Food Chemistry2003; 80: 399-407.

[335] Aldaas SA. Cytotoxic and antibacterial activity of an extract from a Saudi traditional medicinal plant *Equisetum arvense.* MSc thesis, King Abdullah University of Science and Technology, Thuwal 2011.

[336] Yoshinobu Y. Antitumor activity of crude protein extracted from *Equisetum arvense* LINN'E. Journal of Analytical Bio-Science 1992; 22: 421–424.

[337] Yoshinobu Y, Takashi I and Jiharu H. Crude protein extracted from *Equisetum arvense* LINN'E increases the viability of cancer cell *in vivo*. Journal of Analytical Bio-Science 2004; 27: 409-412.

[338] Réthy B. Antitumor effect of plant extracts and their constituents on cancer cell lines. PhD thesis, Department of Pharmacodynamics and Biopharmacy, Faculty of Pharmacy, University of Szeged 2007.

[339] Réthy B, Csupor-Löffler B, Zupkó I, Hajdú Z, Máthé I, Hohmann J, Rédei T and Falkay G. Antiproliferative activity of Hungarian asteraceae species against human cancer cell lines. Part I. Phytother Res 2007; 21(12): 1200-1208.

[340] Csupor-Löffler B, Hajdú Z, Réthy B, Zupkó I, Máthé I, Rédei T, Falkay G and Hohmann J. Antiproliferative activity of Hungarian asteraceae species against human cancer cell lines. Part II. Phytother Res 2009; 23(8): 1109-1115.

[341] Al-Snafi AE. Pharmacological and therapeutic importance of *Erigeron canadensis* (Syn: *Conyza canadensis*). Indo Am J P Sci 2017; 4(02): 248-256.

[342] Csupor-Löffler B, Hajdú Z, Zupkó I, Molnár J, Forgo P, Vasas A, Kele Z and Hohmann J. Antiproliferative constituents of the roots of *Conyza canadensis*. Planta Medica 2011; 77(11): 1183–1188.

[343] Choi HJ. Composition and cytotoxicity of essential oil extracted by steam distillation from horseweed (*Erigeron canadensis* L.) in Korea. Journal of The Korean Agricultural Chemical Society 2008; 5(1): 55-59.

[344] Al-Snafi AE. A review on *Erodium cicutarium*: A potential medicinal plant. Indo Am J P Sci 2017; 4(01): 110-116.

[345] Hassan R, Hussein F,Hawraa M,Akram H,Ahmad K,Ahmad D and Bassam B. Antioxidant, cytotoxic properties and phytochemical screening of two Labanese medicinal plants. IntResJPharm2013; 4(5): 132-136.

[346] Al-Snafi AE. Chemical constituents and pharmacological effects of *Eryngium creticum*- A review. Indo Am J P Sci 2017; 4(01): 67-73.

[347] Rammal H, Farhan H, Jamaleddine N, El Mestrah M, Nasser M and Hijazi A. Effects of altitude on the chemical composition and on some biological properties of Lebanese *Eryngium creticum* L. Journal of Chemical and Pharmaceutical Research 2015; 7(6): 887-893.

[348] Dirani Z, Makki R, Rammal H, Nasserddine S, Hijazi A, Kazan HF, Nasser M, Daher A and Badran B. The antioxidant and anti-tumr activities of the Labanese *Eryngium creticum* L. IJBPAS 2014; 3(10): 2199-2222.

[349] Murata S, Shiragami R, Kosugi C *et al*. Antitumor effect of 1, 8-cineole against colon cancer. Onchology Report 2013: 2647-2652.

[350] Al-Fatimi M, Friedrich U and Jenett-Siems K. Cytotoxicity of plants used in traditional medicine in Yemen. Fitoterapia 2005; 76(3-4): 355-358.

[351] Mubarak EE, Zeenelabdin Ali L, Ahmed IFA, Ahmed ABA and Taha RM. Essential oil compositions and cytotoxicity from various organs of *Eucalyptus camaldulensis.* Int J Agric Biol 2015; 17: 320–326.

[352] Singab A, Ayoub N, Al-Sayed E, Martiskainen O, Sinkkonen J and Pihlaja K. Phenolic constituents of *Eucalyptus camaldulensis* Dehnh, with potential antioxidant and cytotoxic activities. Records of Natural Products 2011; 5(4): 271-280.

[353] El-Baz FK, Mahmoud Kh, El-Hallouty SM, El-Kinawy OS and Ali SI. Antioxidant, antiproliferated activities and GC/MS analysis of *Eucalyptus camaldulensis* essential oil. Int J Pharm Bio Sci 2015; 6(2): (B) 883 – 892.

[354] Jelena D *et al*. *Myrtus communis* and *Eucalyptus camaldulensis* cytotoxicity on breast cancer cells. Proc Nat Sci Matica Srpska Novi Sad 2012; 123: 65-73.

[355] Islam F, Khanam JA, Khatun M, Zuberi N, Khatun L, Kabir, Md Abu Reza SR, Ali MM, Rabbi MA, Gopalan Vand Lam AKY. A *p*-Menth-1-ene-4,7-diol (EC-1) from*Eucalyptus camaldulensis* Dhnh. Triggers apoptosis and cell cycle changes in Ehrlich ascites carcinoma cells. Phytotherapy Research 2015; 29(4): 573–581.

[356] Adeniyi BA, Ayepola OO and Adu FD. The antiviral activity of leaves of *Eucalyptus camaldulensis* (Dehn) and *Eucalyptus torelliana* (R. Muell). Pak J Pharm Sci 2015; 28(5): 1773-1776.

[357] Islam F, Khatun H, Khatun M, Ali SM and Khanam JA. Growth inhibition and apoptosis of Ehrlich ascites carcinoma cells by the methanol extract of*Eucalyptus camaldulensis*. Pharm Biol 2014; 52(3): 281-290.

[358] Ribeiro-Varandas E, Ressureição F, Viegas W and Delgado M. Cytotoxicity of *Eupatorium cannabinum* L. extracts against colon cancer cells and interactions with bisphenol A and doxorubicin. BMC Complement Altern Med 2014; 14: 264.

[359] Al-Snafi AE. Chemical constituents, pharmacological and therapeutic effects of *Eupatorium cannabinum*- A review. Indo Am J P Sci 2017; 4(01): 160-168.

[360] Rucker G, Heiden K and Schenkel E. Antitumor-active lactones from *Kaunia rufescens* and *Eupatorium cannabinum*. J Indian Inst Sci 2001; 81: 333–334- 333.

[361] Woerdenbag HJ, Lemstra W, Malingre TM and Konings AW. Enhanced cytostatic activity of the sesquiterpene lactone eupatoriopicrin by glutathione depletion. Br J Cancer 1989; 59(1): 68-75.

[362] Woerdenbag HJ, van der Linde JC, Kampinga HH, Malingré TM and Konings AW. Induction of DNA damage in Ehrlich ascites tumour cells by exposure to eupatoriopicrin. Biochem Pharmacol 1989; 38(14): 2279-2283.

[363] Ionita L, Grigore A, Pirvu L, Draghici E, Bubueanu C, Ionita C, Pantel M. and Dobre N. Pharmacological activity of an*Eupatorium cannabinum* L. extract. Romanian Biotechnological Letters 2013; 18(6): 8779-8786.

[364] Chen LC, Lee TH, Sung PJ, Shu CW, Lim YP, Cheng MJ, Kuo WL and Chen JJ. New thymol derivatives and cytotoxic constituents from the root of *Eupatorium cannabinum* ssp. asiaticum.Chem Biodivers 2014; 11(9): 1374-1380.

[365] Judzentiene A, Garjonyte R and Budiene J. Variability, toxicity, and antioxidant activity of *Eupatorium cannabinum* (hemp agrimony) essential oils. Pharm Biol 2016; 54(6): 945-953.

[366] Elema ET, Schripsema J and Malingrd TM. Flavones and flavonol glycosides from *Eupatorium cannabinum* L. Pharm Weekbl Sci 1989; 11(5): 161-164.

[367] Patil1 SB and Magdum CS. Determination of LC_{50} values of extracts of *Euphorbia hirta* Linn and *Euphorbia neriifolia* Linn using brine shrimp lethality assay. Asian J Res Pharm. Sci 2011; 1(2): 42-43.

[368] Liu Y, Murakami N, Jia H, Abreu P and Zhang S. Antimalarial flavonol Glycosides from Euphorbia hirta. Pharmaceutical Biology 2007; 45(4): 278-281.

[369] Aliabadi HS, Sajjadib SE and Khodamoradi M. Cytotoxicity of *Euphorbia macroclada* on MDA-MB-468 Breast cancer cell line. Iranian Journal of Pharmaceutical Sciences 2009; 5(2): 103-108.

[370] Leung EH and Ng TB. A relatively stable antifungal peptide from buckwheat seeds with antiproliferative activity toward cancer cells. J Pept Sci 2007; 13(11): 762-767.

[371] Xiao-na G and Hui-yuan Y. Isolation, purification and structure analysis of antitumor protein from tartary buckwheat. Food Science 2007-07, http: //en.cnki. com.cn/Article_ en/CJFDTotal-SPKX200707116.htm

[372] Bai CZ, Feng ML, Hao XL, Zhao ZJ, Li YY and Wang ZH. Anti-tumoral effects of a trypsin inhibitor derived from buckwheat *in vitro* and *in vivo*. Mol Med Rep2015; 12(2): 1777-1782.

[373] Bai CZ, Ji HJ, Feng ML, Hao XL, Zhong QM, Cui XD and Wang ZH. Stimulation of dendritic cell maturation and induction of apoptosis in lymphoma cells by a stable lectin from buckwheat seeds. Genet Mol Res 2015; 14(1): 2162-2175.

[374] Kayashita J, Shimaoka I, Nakajoh M, Kishida N and Kato N. Consumption of a buckwheat protein extract retards 7,12-dimethylbenz[a]anthracene-induced mammary carcinogenesis in rats. Biosci Biotechnol Biochem 1999; 63: l837-1839.

[375] Liu Z, Ishikawa W, Huang X, Tomotake H, Kayashita J, Watanabe H and Kato N. A buckwheat protein product suppresses 1,2-dimethylhydrazine-induced colon carcinogenesis in rats byreducing cell proliferation. J Nutr 2001; 131(6): 1850-1853.

[376] Hashemi SA and Abediankenari S. Suppressive effect of fig (*Ficus carica*) latex on esophageal cancer cell proliferation. Scientific Journal of the Faculty of Medicine in Niš 2013; 30(2): 93-96.

[377] Jasmine R, Manikandan K and Karthikeyan. Evaluating the antioxidant and anticancer property of *Ficus carica* fruits. African Journal of Biotechnology 2015; 14(7): 634-641.

[378] Al Owini SH. A Study on the effect of some plant extracts on certain malignant cell lines *in vitro.* MSc thesis, Department of Biology, Faculty of science, Islamic University – Gaza 2006.

[379] Jing L, Zhang YM, Luo JG and Kong LY. Tirucallane-type triterpenoids from the fruit of Ficus carica and their cytotoxic activity.Chem Pharm Bull (Tokyo) 2015; 63(3): 237-243.

[380] Tezcan G, Tunca B, Bekar A, Yalcin M, Sahin S, Budak F, Cecener G, Egeli U, Demir C, Guvenc G, Yilmaz G, Erkan LG, Malyer H, Taskapilioglu MO, Evrensel T and Bilir A. *Ficus carica* latex prevents invasion through induction of let-7d expression in GBM cell lines. Cell Mol Neurobiol 2015; 35(2): 175-187.

[381] Conforti F, Menichini G, Zanfini L, Tundis R, Statti GA, Provenzano E, Menichini F, Somma F and Alfano C. Evaluation of phototoxic potential of aerial components of the fig tree against human melanoma. Cell Prolif 2012; 45(3): 279-285.

[382] Menichini G, Alfano C, Provenzano E, Marrelli M, Statti GA, Somma F, Menichini F and Conforti F. Fig latex (*Ficus carica* L. cultivar Dottato) in combination with UV irradiation decreases the viability of A375 melanoma cells *in vitro*. Anticancer Agents Med Chem 2012; 12(8): 959-965.

[383] Marrelli M, Menichini F, Statti GA, Bonesi M, Duez P, Menichini F and Conforti F. Changes in the phenolic and lipophilic composition, in the enzyme inhibition and antiproliferative activity of *Ficus carica* L. cultivar Dottato fruits during maturation. Food Chem Toxicol 2012; 50(3-4): 726-733.

[384] Adnan AZ, Muktar MH, Nisa GH and, lrawatiI. Study of anticancer of methanolic extract fractions of Sumatran *Ficus pruniformis, Ficus cunia, Ficus variegate and Ficus lepicarpa on mice by bone marrow method.* College of Parmacy, Gudang Penyimpanan Data Ilmia , University Andalas 2010.

[385] Kirana H, Jali MV and Srinivasan BP. The study of aqueous extract of *Ficus religiosa* Linn. on cytokine TNF-α in type 2 diabetic rats. Pharmacognosy Res 2011; 3(1): 30-34.

[386] Rahman M, Khatun A, Khan S, Hossain F and AKhan A. Phytochemical, cytotoxic and antibacterial activity of two medicinal plants of Bangladesh. Pharmacology Online 2014; 4: 3-10.

[387] Poudel A, Satyal P and Setzer WN.Composition and bioactivities of the leaf essential oil of *Ficus religiosa* Linn. American Journal of Essential Oils and Natural Products 2015; 2 (3): 16-17.

[388] Choudhari AS, Suryavanshi S, Ingle H, Kaul-Ghanekar R. Evaluating the antioxidant potential of aqueous and alcoholic extracts of *Ficus religiosa* using ORAC assay and assessing their cytotoxic activity in cervical cancer cell lines. Biotechnol Bioinf Bioeng 2011; 1(4): 443-450.

[389] Choudhari AS, Suryavanshi SA and Kaul-Ghanekar R. The aqueous extract of *Ficus religiosa* induces cell cycle arrest in human cervical cancer cell lines SiHa (HPV-16 Positive) and apoptosis in HeLa (HPV-18 positive). PLoS One 2013; 8(7): e70127.

[390] Gulecha V and Sivakuma T. Anticancer activity of *Tephrosia purpurea* and *Ficus religiosa* using MCF 7 cell lines. Asian Pac J Trop Med 2011; 4(7): 526-529.

[391] Haneef J, Parvathy M, Thankayyan R SK, Sithul H and Sreeharshan S. Bax translocation mediated mitochondrial apoptosis and caspase dependent photosensitizing effect of *Ficus religiosa* on cancer cells. PLoS One 2012; 7(7): e40055.

[392] Al-Harbi MM, Qureshi S, Raza M, Ahmed MM, Giangreco AB and Shah AH.Influence of anethole treatment on the tumour induced by Ehrlich ascites carcinoma cells in paw of Swiss albino mice. Eur J Cancer Prev 1995; 4(4): 307-318.

[393] Al-Snafi AE. The chemical constituents and pharmacological effects of *Foeniculum vulgare* - A review. IOSR Journal of Pharmacy 2018; 8(5): 81-96.

[394] Al-Snafi AE. *Fritillaria imperialis*- A review. IOSR Journal of pharmacy 2019, 9(3): 47-51.

[395] Erdoğan TF. Brine shrimp lethality bioassay of *Fumaria densiflora* Dc. and *Fumaria officinalis* L. extracts. Hacettepe University Journal of the Faculty of Pharmacy 2009; 28(2): 125-132.

[396] Al-Snafi AE. Constituents and pharmacology of *Fumaria officinalis*- A review. IOSR Journal of Pharmacy 2020; 10(1): 17-25.

[397] Aslantürk OS, Çelik TA, Karabey B and Karabey F. Active phytochemical detecting, antioxidant, cytotoxic, apoptotic activities of ethyl acetate and methanol extracts of *Galium aparine* L. British Journal of Pharmaceutical Research 2017; 15(6): 1-16.

[398] Shi G, Liu J, Zhao W, Liu Y and Tian X. Separation and purification and in vitro anti-proliferative activity of leukemia cell K562 of *Galium aparine* L. petroleum ether phase. Saudi Pharmaceutical Journal 2016; 24(3): 241-244.

[399] Atmaca H, Bozkurt E, Cittan M and Dilek Tepe H. Effects of *Galium aparine* extract on the cell viability, cell cycle and cell death in breastcancer cell lines. J Ethnopharmacol 2016; 186: 305-310.

[400] Al-Snafi AE. Chemical constituents and medical importance of *Galium aparine* - A review. Indo Am J P Sc 2018; 5(3): 1739-1744.

[401] Schmidt M, Polednik C, Roller J and Hagen R. *Galium verum* aqueous extract strongly inhibits the motility of head and neck cancer cell lines and protects mucosal keratinocytes against toxic DNA damage. Oncol Rep 2014; 32(3): 1296-1302.

[402] Schmidt M, Scholz CJ, Gavril GL, Otto C, Polednik C, Roller J and Hagen R. Effect of *Galium verum* aqueous extract on growth, motility and gene expression in drug-sensitive and -resistant laryngeal carcinoma cell lines. Int J Oncol 2014; 44(3): 745-760.

[403] Al-Snafi AE. *Galium verum* -A review. Indo Am J P Sc 2018; 5 (4): 2142-2149.

[404] Alwhibi MS, Khalil MIM, Ibrahim MM, El-Gaaly GA and Sultan AS. Potential antitumor activity and apoptosis induction of Glossostemon bruguieri root extract against hepatocellular carcinoma cells. Evid Based Complement Alternat Med 2017; 2017: 7218562. doi: 10.1155/2017/7218562.

[405] Al-Snafi AE. Medical importance of *Glossostemon bruguieri* – A review. IOSR Journal of pharmacy 2019; 9(5): 34-39.

[406] Badr SEA, Sakr DM, Mahfouz SA and Abdelfattah MS. Licorice (*Glycyrrhiza glabra* L.): Chemical Composition and Biological Impacts. Research Journal of Pharmaceutical, Biological and Chemical Sciences 2013; 4(3): 606-621.

[407] Al-Snafi AE. *Glycyrrhiza glabra*: A phytochemical and pharmacological review. IOSR Journal of Pharmacy 2018; 8(6): 1-17.

[408] Akter R, Uddin SJ, Grice ID and Tiralongo E. Cytotoxic activity screening of Bangladeshi medicinal plant extracts. J Nat Med 2014; 68: 246–252.

[409] Aderogba MA, McGaw Lj, Bagla VP, Eloff JN and Abegaz BM. *In vitro* antifungal activity of the acetone extract and two isolated compounds from the weed, *Pseudognaphalium luteoalbum*. South African Journal of Botany 2014; 94: 74-78.

[410] Al-Snafi AE. The medical benefit of *Gnaphalium luteoalbum*-A review. IOSR Journal of pharmacy 2019; 9(5): 40-44.

[411] Han L and Wang YF. Gossypol in the treatment of endometriosis and uterine myeloma. Contrib Gynecol Obstet 1987; 16: 268–270.

[412] Konac E, Ekmekci A, Yurtcu E and Ergun MA. An in vitro study of cytotoxic effects of gossypol on human epidermoid larynx carcinoma cell line (HEp-2) Exp Oncol 2005; 27(1): 81-83.

[413] Jaroszewski JW, Kaplan O and Cohen JS. Action of gossypol and rhodamine 123 on wild type and multidrug-resistant MCF-7 human breast cancer cells: 31Pnuclear magnetic resonance and toxicity studies. Cancer Res 1990, 50: 6936-6943.

[414] Al-Snafi AE. Encyclopedia of chemical constituents and pharmacological effects of Iraqi medicinal plants. Rigi Publication. 2015.

[415] Piccinelli AL, Lotti C, Severino L, Luongo D and Rastrelli L. Unusual cytotoxic sulfated cadinene-type sesquiterpene glycosides from cottonseed (*Gossypium hirsutum*). Tetrahedron 2008; 64: 5449–5453.

[416] Al-Snafi AE. Chemical constituents and pharmacological activities of *Gossypium herbaceum* and *Gossypium hirsutum* - A review. IOSR Journal of Pharmacy 2018; 8(5): 64-80.

[417] Medeiros JR, Medeiros H, Mascarenhas C, Davin LB and Lewis NG. Bioactive components of *Hedera helix*. Arquipélago, Life and Marine Sciences 2002; 19A: 27-32.

[418] Ibrar M, Ilahi I and Hussain F. The cytotoxic potential of Ivy (*Hedra helix* L.) leaves. Pak J Bot 2001; (Special issue): 697-702.

[419] Gumushan-Aktas H and Altun S. Effects of Hedera helix L. extracts on rat prostate cancer cell proliferation and motility.Oncol Lett 2016; 12(4): 2985-2991.

[420] Al-Snafi AE. Pharmacological and therapeutic activities of *Hedera helix*- A review. IOSR Journal of Pharmacy 2018; 8(5): 41-53.

[421] Csupor-Löffler B. Activity-guided investigation of antiproliferative secondary metabolites of Asteraceae species. PhD thesis ,University of Szeged- Faculty of Pharmacy, Hungary 2012.

[422] Al-Snafi AE. The pharmacological effects of *Helianthus annuus*- A review. Indo Am J P Sc 2018; 5(3): 1745-1756.

[423] Yuana X, Chenga M, Gaoa M, Zhuoa R, Zhanga L and Xiaoa H. Cytotoxic constituents from the leaves of Jerusalem artichoke (Helianthus tuberosus L.) and their structure–activity relationships. Phytochemistry Letters 2013; 6(1): 21-25.

[424] Abou Baker DH, El Gengaihi SE, Aboul Anein AH and Abou El Ella FM. Biochemical study of some active ingredients in *Helianthus tuberosus* L. Medicinal and aromatic plant science and biotechnology 2010; 4(1) : 66-68.

[425] Al-Snafi AE. Medical importance of *Helianthus tuberosus*- A review. Indo Am J P Sc 2018; 5 (4): 2159-2166.

[426] Ziani BEC , Calhelha RC, Barreira JCM, Barros L, Hazzit M and I Ferreira CFR. Bioactive properties of medicinal plants from the Algerian flora: selecting the species with the highest potential in view of application purposes. Industrial Crops and Products 2015; 77: 582–589.

[427] Al-Snafi AE. Pharmacological importance of *Herniaria glabra* and *Herniaria hirsuta* - A review. Indo Am J P Sc 2018; 5 (4): 2167-2175.

[428] Moujir L , Seca AML , Silva AMS , López MR , Padilla N , Cavaleiro JAS and Neto CP. Cytotoxic activity of lignans from Hibiscus cannabinus. Fitoterapia 2007; 78: 385–387.

[429] Al-Snafi AE. Pharmacological effects and therapeutic properties of *Hibiscus cannabinus*- A review. Indo Am J P Sc 2018; 5 (4): 2176-2182.

[430] Sharma S, Khan N and Sultana S. Study on prevention of two-stage skin carcinogenesis by Hibiscus rosa sinensis extract and the role of its chemical constituent, gentisic acid, in the inhibition of tumour promotion response and oxidative stress in mice. Eur J Cancer Prev 2004; 13(1): 53-63.

[431] Arullappan S, Muhamad S and Zakaria Z. Cytotoxic activity of the leaf and stem extracts of *Hibiscus rosa sinensis (Malvaceae)* against leukaemic cell line (K-562). Tropical Journal of Pharmaceutical Research 2013; 12 (5): 743-746.

[432] Al-Snafi AE. Chemical constituents, pharmacological effects and therapeutic importance of *Hibiscus rosa-sinensis*- A review. IOSR Journal of Pharmacy 2018; 8 (7): 101-119.

[433] Tseng TH, Kao ES, Chu CY, Chou FP, Lin WHW and Wang CJ. Protective effects of dried flower extracts of *Hibiscus sabdariffa* L. against oxidative stress in rat primary hepatocytes. Food Chem Toxicol 1997; 35: 1159-1164.

[434] Tseng T, Kao T, Chu C, Chou F, Lin W and Wang C. Induction of apoptosis by Hibiscus protocatechuic acid in human leukemia cells via reduction of retinoblastoma (RB) phosphorylation and Bcl-2 expression. Biochem Pharmacol 2000; 60: 307-315

[435] Chiu CT, Chen JH, Chou FP and Lin HH. *Hibiscus sabdariffa* leaf extract inhibits human prostate cancer cell invasion via down-regulation of Akt/NF-κB/MMP-9 pathway. Nutrients 2015; 7: 5065-5087.

[436] Chiu CT, Hsuan SW, Lin HH, Hsu CC, Chou FP and Chen JH. Hibiscus sabdariffa leaf polyphenolic extract induces human melanoma cell death, apoptosis, and autophagy.J Food Sci 2015; 80(3): H649-658.

[437] Tsai TC, Huang HP, Chang YC and Wang CJ. An anthocyanin-rich extract from Hibiscus sabdariffa Linnaeus inhibits N-nitrosomethylurea-induced leukemia in rats.J Agric Food Chem 2014; 62(7): 1572-1580.

[438] Al-Snafi AE. Pharmacological and therapeutic importance of *Hibiscus sabdariffa*- A review. International Journal of Pharmaceutical Research 2018; 10(3): 451-475.

[439] Olvera-García V, Castaño-Tostado E, Rezendiz-Lopez RI, Reynoso-Camacho R, González de Mejía E, Elizondo G and Loarca-Piña G. Hibiscus sabdariffa L. extracts inhibit the mutagenicity in microsuspension assay and the proliferation of HeLa cells.J Food Sci. 2008 Jun; 73(5): T75-81. doi: 10.1111/j.1750-3841.2008.00781.x.

[440] Al-Snafi AE. Therapeutic importance of *Hyoscyamus* species grown in Iraq (*Hyoscyamus albus*, *Hyoscyamus niger* and *Hyoscyamus reticulates*)- A review. IOSR Journal of Pharmacy 2018; 8(6): 18-32.

[441] Ma CY, Liu WK and Che CT. Lignanamides and nonalkaloidal components of *Hyoscyamus niger* seeds. J Nat Prod2002; 65 (2): 206–209.

[442] Conforti F, Loizzo MR, Statti AG and Menichini F. Cytotoxic activity of antioxidant constituents from *Hypericum triquetrifolium* Turra. Nat Prod Res 2007; 21: 42–46.

[443] Al-Snafi AE.Chemical constituents and pharmacological effects of *Hypericum triquetrifolium*. Indo Am J P Sc 2018; 5(3): 1757-1765.

[444] Abu-Dahab R and Afifi F. Antiproliferative activity of selected medicinal plants of Jordan against a breast adenocarcinoma cell line (MCF7). Scientia Pharma-ceutica 2007; 75: 121–136.

[445] Al-Snafi AE. Chemical constituents and pharmacological effect of *Inula graveolens* (Syn: *Dittrichia graveolens*)- A review. Indo Am J P Sc 2018; 5 (4): 2183-2190.

[446] Bonfils JP, Pinguet F, Culine S and Sauvaire Y. Cytotoxicity of iridals, triterpenoids from Iris, on human tumor cell lines A2780 and K562. Planta Med 2001; 67(1): 79-81.

[447] Benoit-Vical F, Imbert C, Bonfils JP and Sauvaire Y. Antiplasmodial and antifungal activities of iridal, a plant triterpenoid. Phytochemistry 2003; 62 (5): 747-751.

[448] Al-Snafi AE. The medical importance of *Iris pallida* – A review. International Journal of Biological and Pharmaceutical Sciences Archive 2021; 1(2): 190-196.

[449] Al-Snafi AE. Pharmacological and therapeutic effects of *Jasminum sambac*- A review. Indo Am J P Sc 2018; 5(3): 1766-1778.

[450] Talib W H and Mahasneh A M. Antiproliferative activity of plant extracts used against cancer in traditional medicines. Journal of Sci Pharm 2010; 78: 33-45.

[451] Kalaiselvi M, Narmadha R, Ragavendran P, Vidya B, Gomathi D, Raj CA, Starlinraj T, Gopalakrishnan VK, Uma C and Kalaivani K. Chemopreventive effect and HPTLC fingerprinting analysis of Jasminum sambac (L.) Ait. Extract against DLA-induced lymphoma in experimental animals. Appl Biochem Biotechnol 2013; 169(4): 1098-2008.

[452] Doganlar O and Doganlar ZB. Evaluation of the selective anticancer potential and the genetic mechanisms of the induction of apoptosis by walnut milk in human breast and prostate cancer cells. Biomedical Research 2016; 27 (1): 268-278.

[453] Li W, Li DY, Wang HD, Zheng ZJ, Hu J and Li ZZ. *Juglans regia* hexane extract exerts antitumor effect, apoptosis induction and cell circle arrest in prostate cancer cells *in vitro.* Tropical Journal of Pharmaceutical Research March 2015; 14 (3): 399-405.

[454] Zhang XB, Zou CL, Duan YX, Wu F and Li G. Activity guided isolation and modification of juglone from Juglans regia as potent cytotoxic agent against lung cancer cell lines. BMC Complement Altern Med 2015; 15: 396. doi: 10.1186/s12906-015-0920-0.

[455] Al-SnafiAE. Chemical constituents, nutritional, pharmacological and therapeutic importance of *Juglans regia*- A review. IOSR Journal of Pharmacy 2018; 8(11): 1-21.

[456] Ved A, Gupta A and Rawat AK. Antioxidant and Hepatoprotective Potential of Phenol-Rich Fraction of Juniperus communis Linn. Leaves. Pharmacogn Mag 2017; 13(49): 108–113.

[457] Ghaly NS, Mina SA and Younis NAH. *In vitro* cytotoxic activity and phytochemical analysis of the aerial parts of *J. communis* L. cultivated in Egypt. J Pharm Sci & Res 2016; 8(2): 128-131.

[458] Benzina S Harquail J, Jean S, Beauregard AP, Colquhoun CD, Carroll M, Bos A, Gray CA and Robichaud GA. Deoxypodophyllotoxin isolated from Juniperus communisinduces apoptosis in breast cancer cells. Anticancer Agents Med Chem 2015; 15(1): 79-88.

[459] Al-Snafi AE. Pharmacological and therapeutic effects of *Juniperus oxycedrus*- A review. Indo Am J P Sc 2018; 5 (4): 2198-2205.

[460] Marzouk MS, Soliman FM, Shehata IA, Rabee M and Fawzy GA. Flavonoids and biological activities of *Jussiaea repens*.Nat Prod Res 2007; 21(5): 436-443.

[461] Marzouk MS, Soliman FM, Shehata IA, Rabee M and Fawzy GA. Flavonoids and biological activities of *Jussiaea repens*.Nat Prod Res 2007; 21(5): 436-443.

[462] Al-Snafi AE. Constituents and pharmacological importance of *Jussiaea repens* - A review. Indo Am J P Sc 2018; 5 (4): 2206-2212.

[463] Han HY, Kim H, Son YH, Lee G, Jeong SH and Ryu MH. Anti-cancer effects of *Kochia scoparia* fruit in human breast cancer cells. Pharmacogn Mag 2014; 10(Suppl 3): S661-667.

[464] Han HY, Lee HE, Kim HJ, Jeong SH, Kim JH, Kim H and Ryu MH. *Kochia scoparia* induces apoptosis of oral cancer cells in vitro and in heterotopic tumors. J Ethnopharmacol 2016; 192: 431-441.

[465] Al-Snafi AE. A review on pharmacological activities of *Kochia scoparia*. Indo Am J P Sc 2018; 5 (4): 2213-2221.

[466] Woo KW, Suh WS, Subedi L, Kim SY, Choi SU, Kim KH and Lee KR. Phenolic derivatives from the stem of and their biological activity. Heterocycles 2015; 91(12): 2355-2366.

[467] Al-Snafi AE. A review on *Lagerstroemia indica*: A potential medicinal plant. IOSR Journal of Pharmacy 2019; 9(6): 36-42.

[468] Thambi PT, Sabu MC and Chungath JI. Essential oils composition and cytotoxic effect of *Lagerstroemia speciosa* Linn flowers. Journal of Pharmacology and Toxicological Studies 2016; 4(4): 1-5.

[469] Oloyede GK, Olandosu IA and Oloyade OO. Chemical composition and cytotoxic effect of *Largerstroemia speciosa* fruits essential oils. Int J Biol Chem Sci 2010; 4(5): 1851-1854.

[470] Al-Snafi AE. Medicinal value of *Lagerstroemia speciosa*: An updated review. International Journal of Current Pharmaceutical Research 2019; 11(5): 18-26.

[471] Badakhshan MP, Sreenivasan S, Jegathambigai RN and Surash R. Anti-leukemia activity of methanolic extracts of *Lantana camara*. Phcog Res 2009; 1: 274-279.

[472] Pour BM, Latha LY and Sasidharan S. Cytotoxicity and oral acute toxicity studies of *Lantana camara* leaf extract. Molecules 2011; 16(5): 3663-3674.

[473] Al-Snafi AE. Chemical constituents and pharmacological activities of *Lantana camara*- A review. Asian J Pharm Clin Res 2019; 12912): 10-20.

[474] Srivastava P, Kasoju N, Bora U and Chaturvedi R. Dedifferentiation of leaf explants and cytotoxic activity of an aqueous extract of cell cultures of *Lantana camara* L. Plant Cell Tiss Organ Cult 2009; 99: 1–7.

[475] Pradhan R, Dandawate P, Vyas A, Padhye S, Biersack B, Schobert R, Ahmad A and Sarkar FH. From body art to anticancer activities: perspectives on medicinal properties of henna. Current Drug Targets 2012; 13: 1777-1798.

[476] da Silva AJ, Buarque CD, Brito FV, Aurelian L, Macedo LF, Malkas LH, Hickey RJ, Lopes DV, Noel F, Murakami YL, *et al*. Synthesis and preliminary pharmacological evaluation of new (+/-) 1,4-naphthoquinones structurally related to lapachol. Bioorganic & Medicinal Chemistry 2002; 10: 2731-2738.

[477] Kemp AJ, Lyons SD and Christopherson RI. Effects of acivicin and dichloroallyl lawsone upon pyrimidine biosynthesis in mouse L1210 leukemia cells. The Journal of Biological Chemistry 1986; 261: 14891-14895.

[478] Kamei,H, Koide T, Kojima T, Hashimoto Y and Hasegawa M. Inhibition of cell growth in culture by quinones. Cancer Biotherapy & Radio-pharmaceuticals 1998; 13: 185-188.

[479] Abdel-Hamid NM, Mohafez OM, Nazmy MH, Farhan A and Thabet K. The effect of co-administration of *Lawsonia inermis* extract and octreotide on experimental hepatocellular carcinoma. Environ Health Prev Med 2015; 20(3): 195-203.

[480] Al-Snafi AE. A review on *Lawsonia inermis*: A potential medicinal plant. International Journal of Current Pharmaceutical Research 2019; 11(5): 1-13.

[481] Al-Snafi AE. Chemical constituents and pharmacological effects of *Lepidium sativum*- A review. International Journal of Current Pharmaceutical Research 2019; 11(6): 1-10.

[482] Aslani E, Naghsh N and Ranjbar M . Cytotoxic effects of hydro-alcoholic extracts of cress (*Lepidium sativum*)- made from different stages of the plant- on k562 Leukemia cell line. Hormozgan Medical Journal 2014; 18(5): 370-378.

[483] Indumathy R and Aruna A. Cytotoxic potential of various extracts of *Lepidium sativum* (Linn)- An *in-vitro* evaluation. International Journal of Pharmacology and Pharmaceutical Sciences 2015; 2(5): 1-5.

[484] Ait-Yahia O, Bouzroura SA, Belkebir A, Kaci S and Aouichat AB. Cytotoxic activity of flavonoid extracts from *Lepidium sativum* (Brassicaceae) seeds and leaves. International Journal of Pharmacognosy and Phytochemical Research 2015; 7(6); 1231-1235.

[485] Mahassni SH and Al-Reemi RM. Apoptosis and necrosis of human breast cancer cells by an aqueous extract of garden cress (*Lepidium sativum*) seeds. Saudi J Biol Sci 2013; 20(2): 131-139.

[486] Al-Snai AE. Pharmacological and therapeutic effects of *Lippia nodiflora* (*Phyla nodiflora*). IOSR Journal of Pharmacy 2019; 9(8): 15-25.

[487] Vanajothi R, Sudha A, Manikandan R, Rameshthangam P and Srinivasan P. *Luffa acutangula* and *Lippia nodiflora* leaf extract induces growth inhibitory effect through induction of apoptosis on human lung cancer cell line. Biomedicine and Preventive Nutrition 2012; 2(4): 287-293.

[488] Durairaj A, Mazumder UK, Gupta M and Selvan VT. Effect on inhibition of proliferation and antioxidant enzyme level of *Lippia nodiflora* in EAC cell line treated mice. Journal of Complementary and Integrative Medicine 2009; 6(1), doi: 10.2202/1553-3840.1233

[489] Al-Snafi AE. Chemical constituents and pharmacological effects of *Lithospermum officinale*. IOSR Journal of Pharmacy 2019; 9(8): 12-21.

[490] Dashora N and Chauhan LS. *In vitro* cytotoxic activity of *Luffa acutangula* on human neuronal glioblastoma and human lung adenocarcinoma cell lines. Sch Acad J Pharm 2014; 3(5): 401-405.

[491] Vanajothia R, Sudhaa A, Manikandanb R, Rameshthangam P and Srinivasana P. *Luffa acutangula* and *Lippia nodiflora* leaf extract induces growth inhibitory effect through induction of apoptosis on human lung cancer cell line. Biomedicine & Preventive Nutrition 2012; 2: 287-293.

[492] Al-Snafi AE. A review on *Luffa acutangula*: A potential medicinal plant. IOSR Journal of Pharmacy 2019; 9(9): 56-67.

[493] Bulbul IJ, Zulfiker A, Hamid K, Khatun H and Begum Y. Comparative study of *in vitro* antioxidant, antibacterial and cytotoxic activity of two Bangladeshi medicinal plants- *Luffa cylindrica* L and *Luffa acutangula.* Pharmacognosy Journal 2011; 3(23): 23 59-66.

[494] Abdel-Salam IM, Awadein NE and Ashour M. Cytotoxicity of Luffa cylindrica (L.) M. Roem. extract against circulating cancer stem cells in hepatocellular carcinoma. J Ethnopharmacol 2019; 229: 89-96.

[495] Abdel-Salam IM, Ashmawy AM, Hilal AM, Eldahshan OA and Ashour M. Chemical composition of aqueous ethanol extract of *Luffa cylindrica* leaves and its effect on representation of caspase-8, caspase-3, and the proliferation marker Ki67 in intrinsic molecular subtypes of breast cancer *in vitro*. Chem Biodivers 2018; 15(8): e1800045.

[496] Al-Snafi AE. Constituents and pharmacology of *Luffa cylindrica*- A review. IOSR Journal of Pharmacy 2019; 9(9): 68-79.

[497] Al-Snafi AE. Chemical constituents and pharmacological effects of *Lythrum salicaria* - A review. IOSR Journal of Pharmacy 2019; 9(6): 51-59.

[498] Khanavi M, Moshteh M, Manayi A, Shams Ardekani MR, Vazirian M, Ajani Y and Ostad SN. Cytotoxic acivity of *Lythrum salicaria* L. Res J Biol Sci 2011; 6: 55 – 57.

[499] Noratto GD, Bertoldi MC, Krenek K Alcott SE, Stringheta PC, and Mertens- Talcott SU. Anticarcinogenic effects of polyphenolics from mango (*Mangifera indica*) varieties. J Agric Food Chem 2010; 58: 4104–4112.

[500] Al-Shwyeh HA, Abdulkarim SM, Rasedee A, Mirghani MES and Al-Qubaisi M. Cytotoxic effects of *Mangifera indica* L. kernel extract on human breast cancer (MCF-7 and MDAMB- 231 cell lines) and bioactive constituents in the crude extract. BMC Complementary and Alternative Medicine 2014; 14: 199.

[501] Al-Snafi AE, Ibraheemi ZAM, Talab TA. A review on components and pharmacology of *Mangifera indica*. International Journal of Pharmaceutical Research 2021; 13(2): 3043- 3066.

[502] Mohamed NH and Atta EM. Cytotoxic and antioxidant activity of *Marrubium vulgare* and its flavonoid constituents. 2nd International Conference on Chemical, Environmental and Biological Sciences 2013, March 17-18, 2013 Dubai (UAE).

[503] Zarai Z, Kadri A, Chobba IB, Mansour RB, Bekir A, Mejdoub H and Gharsallah N. The in-vitro evaluation of antibacterial, antifungal and cytotoxic properties of *Marrubium vulgare* L. essential oil grown in Tunisia. Lipids in Health and Disease 2011; 10(161); 1-8.

[504] Alkhatib R, Joha S, Cheok M, Roumy V, Idziorek T, Preudhomme C, Quesnel B, Sahpaz S, Bailleul Fand Hennebelle T. Activity of ladanein on leukemia cell lines and its occurrence in Marrubium vulgare.Planta Med 2010; 76(1): 86-87.

[505] Al-Snafi AE. Al-Saedy HA , Talab TA, Majid WJ, El-Saber Batiha G, Jafari-Sales Abolfazl. The bioactive ingredients and therapeutic effects of *Marrubium vulgare* - A review. International Journal of Biological and Pharmaceutical Sciences Archive 2021; 1(2): 9–21.

[506] Gatouillat G, Magid AA, Bertin E, Okiemy-Akeli MG, Morjani H, Lavaud C and Madoulet C. Cytotoxicity and apoptosis induced by alfalfa (Medicago sativa) leaf extracts in sensitive and multidrug-resistant tumor cells. Nutr Cancer 2014; 66(3): 483-491.

[507] Al-Snafi AE. Khadem HS, Al-Saedy HA, Alqahtani AM, El-Saber Batiha G. Jafari-Sales Abolfazl. A review on *Medicago sativa*: A potential medicinal plant. International Journal of Biological and Pharmaceutical Sciences Archive 2021; 1(2): 22-33.

[508] Al-Snafi AE. Chemical constituents and pharmacological effects of *Melilotus officinalis*- A review. IOSR Journal of Pharmacy 2020; 10(1): 26-36.

[509] Zullies I, Kawati S and Sismindari. Cytotoxicity against tumor cell lines of a Ribosome - inactivating protein (RIP) like protein isolated from leaves of *Mirabilis jalapa* L. Malays J Pharm Sci 2006; 4(1): 31-41.

[510] Zullies I Sudjadi, Widyaningsih E, Dyah P and Sismindari. Induction of apoptosis by protein fraction isolated from the leaves of *Mirabilis jalapa* L. on HeLa and Raji cell-line. Oriental Pharmacy and Experimental Medicine 2003; 3(3): 151-156.

[511] Al-Snafi AE. Talab TA, Jabbar WM, Alqahtani AM. Chemical constituents and pharmacological activities of *Mirabilis jalapa*- A review. International Journal of Biological and Pharmaceutical Sciences Archive 2021; 1(2): 34-45.

[512] Al-Snafi AE. Constituents and pharmacology of *Narcissus tazetta*. IOSR Journal of Pharmacy 2020; 10(9): 44-53.

[513] Talib WH and Mahasneh AM. Antiproliferative activity of plant extracts used against cancer in traditional medicine. Scientia Pharmaceutica 2010; 78: 33-45.

[514] Talib WH and Mahasneh AM. Antimicrobial, cytotoxicity and phytochemical screening of Jordanian plants used in traditional medicine. Molecules 2010; 15: 1811-1824.

[515] Youssef D and Khalifa AA. Cytotoxic quaternary alkaloids from the flowers of Narcissus tazetta. Pharmazie 2001; 56(10): 818-22.

[516] Moradi R, Ebrahimi S, Taravati A, Asrardel F, Khorasani HR, Aghajanpour M and Rezaizad M. Cytotoxic effects of the hydroalcoholic extract of *Rorippa nasturtium aquaticum* on hela cell line. IBBJ 2017; 3(2): 73-79.

[517] Al-Snafi AE. A review on *Nasturtium officinale*: A potential medicinal plant. IOSR Journal of Pharmacy 2020; 10(9): 33-43.

[518] Ali HFM, El-Ella FMA and Nasr NF. Screening of chemical analysis, antioxidant, antimicrobial and antitumor activity of essential oil of Oleander (*Nerium oleander*) flower. International Journal of Biological Chemistry 2010; 4(4): 190-202.

[519] Namian P, Talebi T, Germi KG and Shabani F. Screening of biological activities (antioxidant, antibacterial and antitumor) of *Nerium oleander* leaf and flower extracts. American Journal of Phytomedicine and Clinical Therapeutics 2013; 1(4): 378-384.

[520] Al-Hakak ZM, Khaleel ZI and Fadel MA. Study the effect of the toxic alcoholic extract of *Nerium oleander* on the liver cancer cell line in vivo and the effects on the liver histology in Mus Musculus. J Pharm Sci & Res 2019; 11(1): 201-205.

[521] Al-Snafi AE. Bioactive ingredients and pharmacological effects of *Nerium oleander*. IOSR Journal of Pharmacy 2020; 10(9): 19-32.

[522] Khan I, Ahmad K, Khalil AT, Khan J, Khan YA, Saqib MS, Umar MN and Ahmad H. Evaluation of antileishmanial, antibacterial and brine shrimp cytotoxic potential of crude methanolic extract of Herb *Ocimum basilicum* (Lamiacea).J Tradit Chin Med 2015; 35(3): 316-322.

[523] Dasgupta T, Rao AR and Yadava PK. Chemomodulatory efficacy of basil leaf (Ocimum basilicum) on drug metabolizing and antioxidant enzymes, and on carcinogen-induced skin and forestomach papillomagenesis.Phytomedicine 2004; 11(2-3): 139-151.

[524] Al-Snafi AE. Chemical constituents and pharmacological effects of *Ocimum basilicum*- A review. International Journal of Pharmaceutical Research 2021; 13(2): 2997-3013.

[525] Jiang D, Rasul A, Batool R, Sarfraz I, HussainG , Tahir MM, Qin T, Selamoglu Z, Ali M, Li J and Li X. Potential anticancer properties and mechanisms of action of formononetin. Bio Med Research International 2019; 5854315, https: //doi.org/ 10.1155/ 2019/5854315

[526] Al-Snafi AE. The traditional uses, constituents and pharmacological effects of *Ononis spinosa*. IOSR Journal of Pharmacy 2020; 10(2): 53-59.

[527] Molnár J, Szebeni GJ, Csupor-Löffler B, Hajdú Z, Szekeres T, Saiko P, Ocsovszki I, Puskás LG, Hohmann J and Zupkó I. Investigation of the antiproliferative properties of natural sesquiterpenes from *Artemisia asiatica* and *Onopordum acanthium* on HL-60 cells *in vitro*.Int J Mol Sci 2016; 17(2): 83.

[528] Abusamra YA, Scuruchi M, Habibatni S, Maammeri Z, Benayache S, D'Ascola A, Avenoso A, Campo GM and Spina E. Evaluation of putative cytotoxic activity of crude extracts from *Onopordum acanthium* leaves and *Spartium junceum* flowers against the U-373 lioblastoma cell line.Pak J Pharm Sci 2015; 28(4): 1225-1232.

[529] Csupor-Löffler B, Hajdú Z, Rethy B, Zupkó I, Máthé I, Rédei T, Falkay G and Hohmann J. Antiproliferative activity of Hungarian Asteraceae species against human cancer cell lines, Part II. Phytother Res 2009; 23: 1109–1115.

[530] Al-Snafi AE. Constituents and pharmacology of *Onopordum acanthium*. IOSR Journal of Pharmacy 2020; 10(3): 7-14.

[531] Dharmakrishnan R, Ravikumar K, Seedevi P, Shanmugam A and Shanmugam V.Antioxidant and anticancer effect of polysaccharides from *Orchis mascula* and its structural elucidation. Pharm Anal Acta 2018; 9, doi: 10.4172/2153-2435-C1-034

[532] Al-Snafi AE. Pharmacological potential of *Orchis mascula*- A review. IOSR Journal of Pharmacy 2020; 10(3): 1-6.

[533] Al-Snafi AE. Pharmacological and toxicological effects of the *Ranunculus* species (*Ranunculus arvensis* and *Ranunculus sceleratus*) grown in Iraq. International Journal of Biological and Pharmaceutical Sciences Archive 2022; 3(2): 1–9.

[534] Radulović NS, Zlatković DB, Ilić-Tomić T, Senerović L and Nikodinovic-Runic J. Cytotoxic effect of *Reseda lutea* L.: A case of forgotten remedy. J Ethnopharmacol 2014; 153(1): 125-132.

[535] Imran M, Rauf A, Abu-Izneid T, Nadeem M, Shariati MA, Khan IA, Imran A, Orhan IE, Rizwan M, Atif M, GondalTA and Mubarak MS. Luteolin, a flavonoid, as an anticancer agent: A review. Biomedicine & Pharmacotherapy 2019; 112: 108612.

[536] Al-Snafi AE. Constituents and biological effects of *Reseda lutea* and *Reseda odorata* grown in Iraq. International Journal of Biological and Pharmaceutical Sciences Archive 2022; 3(1): 56–63.