International Journal of Scientific Research in Engineering and Management (IJSREM)
Volume: 07 Issue: 03 | March - 2023 Impact Factor: 7.185 ISSN: 2582-3930

A Review on Medicinal Importance of Herbal Products

Patel Paras, Baraiya Nitesh

Abstract

The majority of herbal items constitute the main source of pharmaceutical substances with recognised therapeutic qualities. To confirm the general effectiveness of traditional remedies, numerous investigations have been carried out. Because viruses are always changing, there are substantial obstacles in the basic barrier for illness; instead, viruses exhibit complexion, which is a genetic mutation that causes accumulation throughout the course of their lives. There have been significant efforts done to identify the likely best treatments for it. Synthetic organic molecules have been used extensively in modern medicines for many years, yet there is a risk to human life from potential side effects. According to popular belief, employing herbal medicines as a supplemental approach can lower toxicity levels, have few negative effects, and are widely available.

Introduction

Since the previous two to three millennia, the Indian subcontinent and traditional Chinese medicine have developed and employed Ayurveda, Siddha, and Unani, which have distinct understandings of Physiology, etiology, pharmacology, and drugs that differ from Western biomedicine [1]. Extensive research is being conducted to commercialize TM because, in the opinion of the WHO, there is not enough information on the effectiveness and safety of traditional medicine [2, 3]. Numerous natural items that have undergone evaluation have been reported to have potent antiviral activity against the following viruses: measles, mumps, rubella, coxsackie, dengue, Herpes simplex, hepatitis B, coronavirus, hepatitis, enterovirus 71, and hepatitis [4]. Sedative, anti-arthritic, antipyretic, hypoglycemic, diuretic, spermicidal, antifungal, antibacterial, antiulcer, antiviral, and antipsoriatic locomotion are just a few of the pharmacological effects of Azadirachta indica seed oil and its key components. as displayed [6,7]. There is evidence for the presence of antiretroviral, antimalarial, and antifungal Curcumin is a wonder medication due to its synergistic effects, which include cell reinforcement potential, relaxing, and anticancer action [8]. Its antiviral and multipotent qualities would be helpful against developing infections caused by bacteria and organisms. A potential natural substance with a variety of medicinal characteristics is curcuminoids [9]. When directly administered curcumin or its derivatives, Zika (ZIKV) and Chikungunya (CHIKV) infections lost their ability to infect cells, demonstrating that curcumin inhibits the infection's capacity to contaminate cells and, as a result, demonstrates the virus's infectivity.It was shown that subsidiary with shorter chains had stronger antiviral effect this suggests that camphor may also have beneficial uses [11]. This suggests that camphor also has beneficial uses [11]. Camphor-based imines were mixed and tested for antiviral potential against influenza infection. Camphor is used to reduce pain and has a number of natural health benefits, including antibacterial, antiviral, and antitussive effects [12–16], as well as being anti-infective and anti-pruritic [17–18]. Polysaccharides in aloe vera gel, for instance, have healing qualities. Immunostimulation, reducing effects, Wound healing, radiation damage repair, antibacterial, antiviral, antiparasitic, antidiabetic,

antineoplastic exercises, hematopoiesis feeling, and cell reinforcement effects [19–22]. Aloe-vera can be used as a germicide, a tranquillizer, a heart-health restorer, to help relieve the symptoms of serious diseases like diabetes and preferring disease, as a wonder enhancer, and to promote overall wellbeing [23]. Scutellariabaicalensis was discovered to be used in the treatment of loose stools, diarrhoea, hypertension, discharge, sleep deprivation, irritation, and respiratory contaminations in BencaoGangmu, the most renowned traditional chinese medicine book, which was published in 1593 [24].

More scientific research on Camellia sinensis parts is being done as a result of an ancient belief that people who consume large amounts of green tea have less tooth decay [25]. Numerous human clinical preliminary studies indicate that drinking tea regularly may lessen the severity and rate of bone rot or disintegration [26]. The number of disease patients is predicted to increase to up to 16 million annually by the end of 2020 [27]. Cell damage, maturation, and other diseases are also treated with cancer prevention compounds [28], and numerous plants have been found to produce different antioxidative mixtures like phenols, alkaloids, and terpenoids with various advantageous properties [29]. In traditional Chinese and Japanese home grown medicine, magnolia species like M. Obovata and M. Officinalis are particularly significant for the treatment of gastrointestinal problems, unease, and unfavourably susceptible illness. Applications include remediation of the tree's parts and quantitative assurance of its synthetic constituents [30]. The body can be protected by normal cell reinforcements from Free radicals that cause chronic diseases such as cancer growth, cardiovascular infections and waterfalls. Glycosides, flavonoids, proanthocyanidins, tannins, mono- and sesquiterpenoids, phenylpropanoids, diterpenoids, lignans, alkaloids, furocoumarins, naphthodianthrones are examples of bioactive mixtures found in plants that make a cell reinforcement decision more secure [31].

One of the most prevalent flavonoid glycosides, kaempferol has a variety of beneficial effects, including those on the heart, brain, and nervous system, as well as diabetes prevention, antimicrobial, antitumor, and anticancer properties [32, 33]. [34–36] High intakes of kaempferol are linked to lower disease rates Organs such as skin, liver, colon, ovaries, pancreas, stomach, and bladder. Consuming leafy vegetables also offers defence against a number of tumours. Usually, this is only used for cancerous growths in the digestive and respiratory systems [37, 38]. By adding 1-2 servings of fruits and vegetables to your diet each day, you may reduce your risk of cardiovascular disease by 30% [39]. In a few ancient Greek texts, the value of honey for human consumption is mentioned. Over 4000 years ago, India began using honey in Ayurvedic medicine.

Hindu, Greek, Roman, Jewish, Christian, Muslim, and other religions societies have all recorded honey's beneficial and healing properties [40]. The bark of cinchona contains more than 20 alkaloids with a 15% total content, ideally quinine, quinidine, cinchonidine, and cinchonine, as well as rule-dynamic substances like Tannins (3–10%) [41]. Bark of cinchona tree, 30cm long and 26cm thick, is used for healing. In addition to these, the bark also contains minerals, medicinal balms, and acids like proanthocyanidin-containing flavonoids, natural (quinonic corrosive), and phenolic (caffeic corrosive) triterpene [42, 43].Due to its numerous natural attributes, the grape has been regarded as one of the edible sweet products of the soil for more than 2000 years [44]. It is anticipated that the creation of antimicrobial materials will continue to grow, leading to a Tannins (3–10%) [41]. Cinchona bark, 30 cm long, 2-6 cm thick [45]. The characteristics of common items that have been mentioned before show that they are frequently used for specific purposes.

Methodologies

The following are the Leading herbal medicines with positive results in pluripotency activities:

Aloe-Vera Gel

Underneath is a schematic graph and a list of the components found in aloe vera gel.

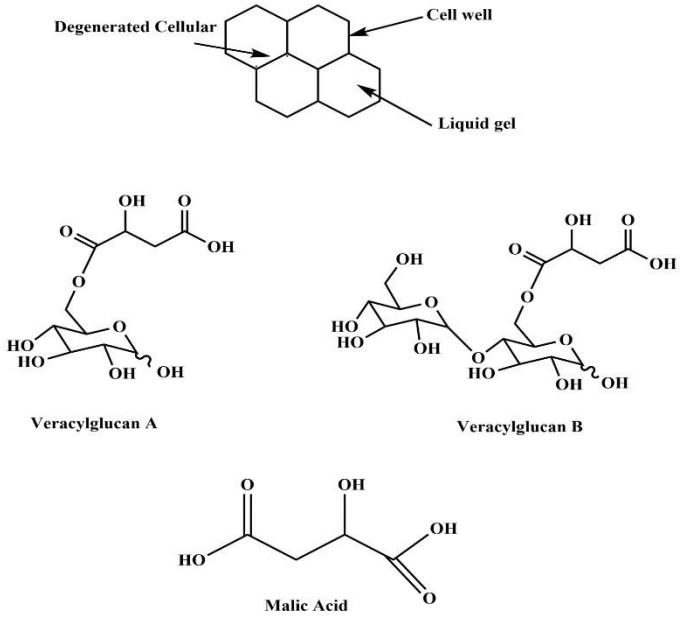

Figure (1) Schematic representation of Aloe Vera gel and Chemical structures of the components present in Aloe Vera gel [19]

Polysaccharides, a dynamic component Aloe vera gel has positive properties such as immune stimulation, soothing effect and wound healing, advancement of radiation harm repair, antibacterial, antiviral, antiparasitic, antidiabetic, antineoplastic exercises, feeling of hematopoiesis, and antioxidant impacts [19-22].

Anti-diabetic Effects

A significant reduction in fasting blood glucose, hepatic transaminases, plasma and tissue cholesterol, fatty oils, free unsaturated fats, and phospholipids, as well as a marked increase in plasma insulin levels, were observed in Streptozotocininduced diabetic rodents after oral administration of aloe vera gel [46]. Because a cell reinforcement system reduced oxidative damage in the cerebrums of streptozotocinactivated mice and decreased peroxidation levels in the kidneys of streptozotocin induced diabetic rodents, it may be possible to understand how glucose levels are reduced. [47].

Immunomodulatory Effects

In any case, aloe vera polysaccharides are effective, but if used within 24 hours of UV exposure, resistant security consequently happens to fix the damaged DNA, aloe-vera gel is effective in preventing concealment of neighbourhood and precise invulnerability to haptens as well as delayed type extreme touchiness reactions to candida albicans and alloantigen [48]. The polysaccharides in aloe-vera gel demonstrated immunomodulatory properties upon activation of macrophage cells to produce nitric oxide,

release cytokines (e.g., cancer rot factor-alpha or TNF-, interleukin-1 or IL-1, interleukin-6 or IL-6, and interferon- or INF-), and present cell surface markers [49–51]. Rough aloe-vera juice's ability to simulate macrophage feeling is only available in small amounts and is dependent on macrophages.

Antioxidant, Wound healing & Anti-cancer Effects:-

A small amount Aloe vera gel contains glutathione peroxidase activity, superoxide dismutase catalysis, and phenolic cell enhancement, which may be responsible for cancer prevention agent action. Aloe-vera gel has a portion subordinate cancer prevention agent impact in two sans cell in vitro frameworks with kindled colorectal mucosal biopsies [56]. Removal of the 5.5 kDa glycoprotein from Aloe vera improved cell motility and accelerated damage repair in human keratinocyte monolayers. Confirmation of this glycoprotein component was further enhanced by its wound healing effect and cell proliferation in smooth mice [57]. Glycoproteins and polysaccharides, components of aloe vera gel, have been shown to work against malignant growths [53].

Effects on Gastric acid Secretion & Ulcers, Skin hydration, Hepatoprotective and Anti-microbial activities

Focus-subordinate inhibition of gastric acid discharge was shown by aloe-vera gel ethanol and water concentrate, This is explained by direct association with acidproducing cells or possible cooperation between H2 receptors on parietal cells. Various studies have been conducted on cytoprotective components, focusing on increased fluid retention, increased mucosal blood flow, and increased phospholipid content of the mucosal envelope[58]. It turns out that Every day for about 2 weeks. Liver damage caused by the use of liquid concentrates of carbon tetrachloride was significantly reduced, and certain biochemical boundaries were altered by dried aloe vera. hepatoprotective activity is thought to protect the liver's ability to use substances [60]. Aloe-vera gel exudate anthraquinones have shown extensive antimicrobial, antiviral, and antivirucidal effects for a range of infections. Emodin's antibacterial effect on Escherichia coli (E. coli) was thought to be hampered by solute transport obstruction in films [61].

Camphor

The primary recipe of some enemy of flu medications and against flu A(H1N1) of camphor subordinates [11] are given below.

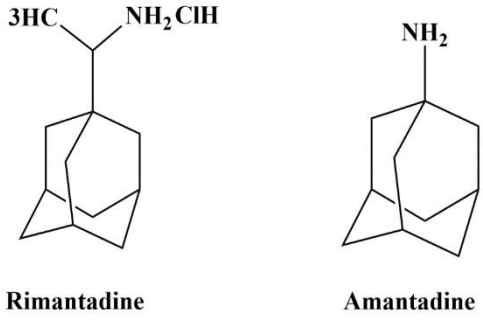

Figure (2) Few chemical structures of anti-influenza drugs and anti-influenza A(H1N1) of Camphor derivatives [11]

It has three fundamental dynamic parts which incorporates 1,8-cineole, α-and βthujone and camphor which are utilized to treat infections [17].

Anti-microbial Activity

Numerous common emollients and plants, including camphor, have been found to have antimicrobial properties [16, 62–65]. With the aid of a liquid scattering technique, it was found that a restorative demulcent containing camphor had weak antimicrobial It has activity against the Gram-positive microbes Enterococcus hirae, cultivars, Candida albicans, and Saccharomyces cerevisiae, and camphor-based regular Greek sage oil (Salvia fruticosa) has overall weak antibacterial activity. showed. In addition, rosemary oil has been shown to potently inhibit bacterial development by 1/100 and weaken two Gram-negative bacteria (Pseudomonas fluorescens and Serratia licefaciens). Supercritical fluid extraction of camphor from revived rosemary has been shown to kill

Staphylococcus aureus, Bacillus subtilis,

E. Escherichia coli, Pseudomonas aeruginosa, C. albicans, The appropriateness In terms of development demand, verbenone beat out all other natural substances that were tried in smaller doses [67]. When combined with 1,8-cineole, camphor was discovered to be more effective against Candida albicans and Candida krusei. It has been determined that the main antagonists of microbial pieces of tea brier (Lippiachevalieri) oil are elemol, 1,8-cineole, camphor, and p-cymene [68]. Moderate antifungal activity was found against Colletotrichumacutatum, C.fragariae, and C.gloeosporoides by Salvia macrochlamys and decorating sage (S.recognita), both well-off in camphor (11% and 42% independently) at 200g/mL centre. [69].

Antiviral & Antitussive Activities

The 1, 8-cineole, -and-thujone, camphor, and other constituents of Greek sage (Salvia Fruticosa) exhibited increased levels of virucidal development against herpes simplex disease. 1. Decline tests with IC50 values of 0.88 g/mL for HSV1 and 0.7 g/mL for HSV2 showed that the use of lavender cotton (santolina insularis) reviving medicine, which contains enough camphor, indicates that the plague game plan shows limitation Cell-to-cell transfer of both HSV1 and HSV2 [70]. Internal inhalation of camphor was indeed effective in de-winding the nose, but it also caused a sharp sensation in the nose. and more created breeze stream, showing that camphor activated the nose's cold receptors. It was also found that the 500 mg/L camphor mixture significantly reduced (33%) the frequency of meat cutting in 3 animals. smoulder. Observations showed that TRPM8 is the new name for camphor-activated cold receptors [71, 72]. Camphor was used in the production of camphor lactam and tested for antitussive activity in guinea pigs using citrus-derived mince [73].

Anti-nociceptive Activity

Camphor was found to stimulate Garlic receptor (TRPA1) is inhibited while capsaicin receptor (TRPV1) is abolished. aggravation letting influences free from camphor is a direct result of TRPV1 de-sensitization and TRPA1 obstructing [74]. Camphor inhibits nociceptive activity. Investigations into the irritant-allowing properties of 1,8cineole (24%) and camphor (18%) found in California sagebrush (Artemisia Californica) were conducted. Patients with lower back pain, joint pain, wounds, muscle and ligament strains, broken bones, and, surprisingly, harmful development, all reported successfully using related treatments to relieve

their discomfort. Camphor quickly deactivates TRP coordinates when used against TRPV2, TRPA1, and TRPV1, resulting in long-term assistance with discomfort. [75].

Anti-mutagenic and Anti-cancer Activities

According to animal studies, camphor could be used to treat developing threats because it had a radio-modifying effect on cells that cause cancer [76–79]. Camphor was antagonistic to mutagenic effects at incredibly low concentrations, as determined by differentiation and Although greater doses failed to fortify against mutagenic effects, other monoterpenes were screened (approximately 40% decrease in UVinduced revertant at 0.5 and 1 g/plate) [80]. Upon testing, it was discovered that camphor at low concentrations was biologically hostile to mutagens, threatened to be genotoxic to 4NQO in mammalian cells, and threatened to vivify DNA fix. Camphor can be regarded as antimutagenic because With an IC50 value of 7.89 M, it was discovered to have an inhibitory impact on the pentoxyresorufin-O-depenthylase (Prod) impetus [81]. The cultivated sage (Salvia officinalis) grown in camphor decreased UV-induced mutagenesis, influenced unrestricted change repetition in jumble, and demonstrated anti-mutagenic activity at particularly low concentrations while failing to increase anti-mutagenic effects at high concentrations when tested with the maintenance-trained strain [82, 83].

Insecticidal Activity

Camphor and its various components were directly responsible for the camphor basil's (O. kilimandscharicum) insecticidal activity against Rhyzoperthadominica and S. zeamais; however, After 24 hours of receptiveness at 0.1 L/720 mL volume, camphor had no effect on triboliumcastaneum but did show interaction with and fumigant activity against Rhyzoperthadominica and S. oryzae [84]. For contact toxicity, camphor caused the highest mortality (78.5%) at its most basic attempted segment (10.0 L/grown-up); for fumigant destructiveness, camphor caused the highest mortality (93.5%) at its highest attempted segment (120 L/350 mL vol.) [85]. Camphor was viewed by Qiantai and Yongcheng as a crucial barricade against Chinese restorative drugs. demulcents.

Cardiovascular Effects

The external layer of the skin became flushed as a result of the subcutaneous mplantation of camphor in sterile oil, which also widened the perivascular veins. Cardiovascular dissatisfaction progressed as a result, and the patient experienced conditions like cool skin, a weak heartbeat, and besieging heart. The final findings of controlled clinical trials examining (+)- camphor's effects on the cardiovascular system have been published [87]. Belz and Loew used independent, twofold outwardly disabled, randomised, counterfeit treatment controlled studies to examine the effects of (+)-camphor on orthostatic hypotension (removed from new Crataegus berries). They found that (+)-camphor and the concentrate from fresh Crataegus berries increased the pressoric effects, with (+)-camphor causing the fundamental rapid effect and the concentrate being at risk for the reliable effect. [88].

Camphor as a Potential Skin Penetration Enhancer

Together, menthol and camphor boosted methyl salicylate's epidermal penetration and stopped its harmful[89]. On comparison to the control utilising extricated rat stomach skin mounted in Franz scattering cells, the movement of carvedilol produced from courses of action incorporating camphor, transcutol, d-limonene, carvone, labrasol, and menthol was 7.81, 7.26, 5.91, 4.21, and 2.28 times greater, respectively. The greatest infiltration was shown by camphor, and basil oil (Ocimumbasilicum).

Allelopathic Activity

By examining (+)- camphor centralizations in soil and air that had grown in the presence of leaf powder, the substance discharge from the camphor shrub tree's (C. camphora) leaf powder was concentrated. (+)-Camphor was recognised in this dirt as well as the dirt water, but it was not entirely settled that it was the primary phytotoxic allelochemical responsible for the development concealment [91]. By comparing the counter germinative capacities of radish (Raphanus sativus) and garden cress (Lepidium sativum) seeds 120 hours after planting, the allelopathic movement of camphor and other monoterpenes was concentrated.

Other Applications

When camphor was administered at 50 mg/kg as the dosage, Jamshidzadeh et al. looked at how it affected sexual development in male rodents as well as sexual desire and performance [93]. As it was found that combining camphor with active Seminiferous tubule development in male mice may be impacted by vascularization and sexual cell duplication , camphor also has a significant impact on the conceptive ability of mice balls [94]. The development of the leaves and chemical components of sweet wormwood (Artemisia annua), including camphor, against coccidian parasites was investigated [95]. It was discovered that the absinthe wormwood reviving balm (Artemisia absinthium), which contained 27.40% camphor, was effective against both promastigote and axenic amastigote structures (MIC 0.0097 L/mL).

Curcumin

Numerous natural activities of curcuminoids and their derivatives have been demonstrated, including neuroprotection, Alzheimer's illness, premenstrual syndrome, transthyretin amyloidosis, oxidative stress, memory function, mitochondrial dysfunction in the brain, onerous upheaval, antitumor activity, cell reinforcement activity, radioprotective influence, and physically transmitted diseases. Chromium toxicity, diverse curcuminoids-based metal structures, and their potential applications in the treatment of rheumatoid arthritis pain, cytotoxicity, neuroprotection, antioxidant activity, and microbial growth action, as well as various curcuminoids-based details and their anticancer action, cancer prevention agent action, antibacterial impact, neuroprotective impact, against diabetic action, against malarial action, and antifungal activity radioactivity.

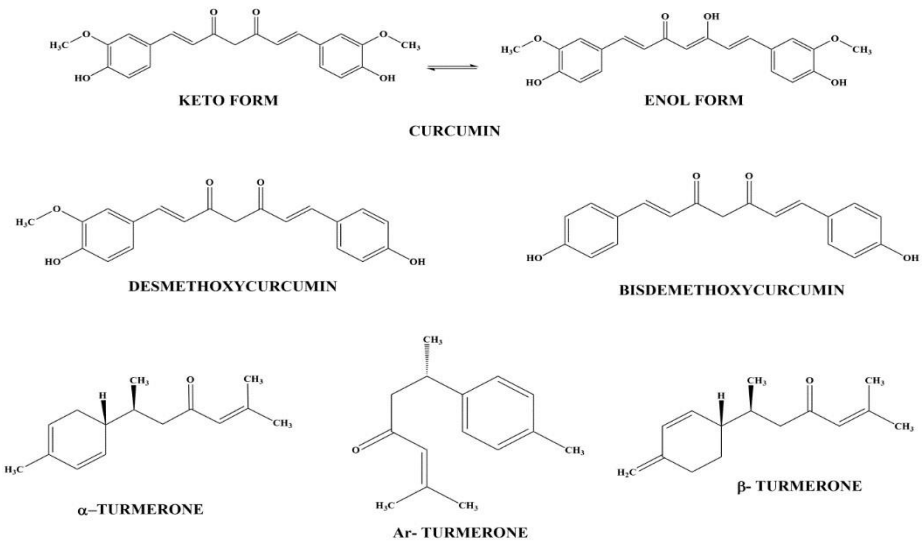

Figure (3) Chemical structures of important constituent present in Turmeric [9]

Turmeric is an Indian rhizomatous home-grown plant of the ginger family (Zingiberaceae) of notable restorative advantages [97].

Anti-Viral Property

Human norovirus (HuNoV), Coxsackie infection, respiratory syncytial virus (RSV), herpes simplex, hepatitis B (HBV), hepatitis C (HCV), and hepatitis B infection (HCV) are just a few of the infections that curcumin, a plant derivative, has been shown to have antiviral activity against. 1 Curcumin has shown antiviral activity against respiratory syncytial infection contamination, which is linked to serious lung disease, when used as a graphene oxide. It was developed and functionalized into a beta-cyclodextrin (Compact disc), which showed good antiviral action and persuasively demonstrated how the composite may stop the RSV from infecting the host cells by cutting off the viral attachment connection, having both preventative and curative effects against infection [103]. Inhibition of Inosine-Monophosphate Dehydrogenase Activity by Curcumin (IMPDH).

Anti-Inflammatory Activity

In six preliminary human studies, curcumin was found to be safe and to be a mitigating agent by reducing the number of aggravating particles, such as cytokines, protein kinases, grip atoms, redox status, and catalysts [105-107]. In a variety of diseases, growth rot factor (TNF-) is a significant source of irritation. It is anticipated that experts who downregulate NF-kB and NF-kB-managed quality items will be resistant to a variety of infections (like ecological contaminations, synthetic, physical, mental pressure, bright radiation, cigrate smoke). A few different stimuli have been shown to increase the activity of NF-kB, which has been shown to be inhibited by curcumin. This suppresses irritability using a variety of tools. [108].

Antioxidant & Anti-cancer Properties

The ability of curcumin to control GSH, catalase, and Turf protein activity in the dynamic balance of free radicals has been examined [109-111]. Similar to vitamin E, curcumin is thought to break cell chains and is known to scavenge many forms of free radicals, including reactive oxygen and nitrogen species (ROS and RNS) [112-114]. With advantages in gastrointestinal, melanoma, genito-urinary, bosom, and cellular breakdown in the lungs, curcumin has recently been researched as a disease fighter [115-118]. Sulfone analogues S1 through S3 prevented the growth of human prostate, colon, lung, and pancreatic malignant growth cells, whereas curcumin prevents carcinogenesis by regulating two crucial cycles: angiogenesis and cancer development [119]. [120, 121].

Anti-Bacterial Property

RGP and KGP (Arg- and Lys-explicit Proteinase) activity of certain periodontopathic bacteria and Porphyromonas gum disease are both inhibited by curcumin. These P. gum disease biofilm configurations were decreased by more than 80% at a concentration of 20 g/mL, where bacterial proliferation was totally inhibited. At quantities greater than those previously stated, curcumin also targets bacterial films (Escherichia coli) [122, 123]. Embarrassing skin disorders and injuries can Curcumin polymyxin B is an effective treatment and cure [124]. Furthermore, curcumin stacked in zein (zein-Mutt) filaments has antibacterial activity against S. aureus and E. coli as well as the capacity to restrain growth improved with the rise in curcumin content.

Zein-Mongrel filaments are a likely material for antimicrobial applications to stop the growth of germs, claims the review. The curcumin-chitosan film demonstrated antibacterial effectiveness against staphylococcus aureus and the rhizoctaniasolani class of microscopic organisms, according to the zone restraint technique [126]. Curcumin nanoparticles' small size is crucial for enhancing antibacterial properties, and curcumin and chitosan together can be used as an effective antibacterial combination in food and agricultural products. The most effective antibacterial action against Listeria monocytogenes was shown by curcumin nanoparticles. [127, 128].

Anti-Allergy & Anti-Asthma Effects

By reducing sneezing, rhinorrhea, and nasal obstruction, curcumin decreased nasal wind current. Additionally, it increases levels of IL-10 and dissolvable intercellular bond particles while decreasing levels of IL-4, IL-8, and growth corruption factor alpha. The activation of JNK 54/56, p38 MAPK, and ERK 42/44 in rodent asthma movement was reduced by curcumin. Balb/c mouse ovalbumin (OVA) fixation at 2.5 +—————— and 5.0 mg/kg controls aggravation and obstruction of the flight path principally via altering cytokine levels. [129].

Anti-Fungal, Anti-arthritis, Anti-venom & Anti-obesity Activities

At concentrations of 0.8 and 1.0 g/L, curcumin powder in plant tissue significantly inhibited the spread of contamination [130]. A decrease in proteinase emission and a change in film-related properties of ATPase movement are two additional significant and important factors for curcumin's anti-contagious actions [131]. The antiparasitic efficacy of the yeast against planktonic structure was significantly enhanced by a more potent method of combining curcumin with light [132]. The most substantial number of improvements in rheumatoid joint pain came from the curcumin treatment, and the results were unmistakably superior than those of the patients receiving diclofenac sodium [133]. Patients with rheumatic joint pain experienced less adverse effects thanks to the anti-proliferative, sedative, and immunosuppressive characteristics of cancer prevention drugs [134]. Since studies have shown that curcumin communicates well with the amino corrosive buildups at the dynamic site of the toxin PLA2, which may result in constraint, curcumin is effective against the snake toxin PLA2 [135, 136]. On treated patients for concentrations on large patients, curcumin worked as a fat substance. Significant changes in TG levels were seen after 30 days of curcumin administration, while other parameters remained the same. [137].

Anti-Diabetic

Patients with rheumatic joint pain experienced less adverse effects thanks to the antiproliferative, sedative, and immunosuppressive characteristics of cancer prevention drugs [134]. Since studies have shown that curcumin communicates well with the amino corrosive buildups at the dynamic site of the toxin PLA2, which may result in constraint, curcumin is effective against the snake toxin PLA2 [135, 136]. On treated patients for concentrations on large patients, curcumin worked as a fat substance. While other limits remained intact after 30 days of curcumin organisation, significant alterations in TG levels were seen [137]. In contrast, the group treated with curcumin displayed higher levels of adiponectin and lower levels of HOMA-IR (insulin opposition record), suggesting that curcumin intercession may benefit a pre-diabetic population. Curcumin-treated bunch results also demonstrated improved overall capability of -cells. [140].

Wound-Healing, Anti-alzheimer, Depression & Anxiety Activities

In essence, curcumin restores the basic processes of wound healing, such as reepithelialization, neovascularization, collagen synthesis, and granulation tissue organisation. Pseudomonas aeruginosa, the most prevalent microorganism among disconnections, is likewise inhibited by curcumin for a period of 14 days as part of the treatment. In addition to promoting twisted repair in consume wounds in rodents and combating wound pathogens, curcumin also stimulates the growth factors involved in injury recovery [141, 142]. While working on supported consideration and working memory tasks after a single portion, The specifics of new curcumin were enhanced to ensure a higher bioavailability in the lower section (80–180 mg/day), showed excellent results in both intense and continuous, and enhanced memory, mindset, readiness, and satisfaction after a month of organisation [143, 144]. 500–1000 milligrammes of curcumin V[151]. Curcumin Used In Eye **Disease**

was administered orally in several few clinical studies along with the typical antagonist of the problematic specialist's fluoxetine, venlafaxine, or escitalopram, and the results demonstrated an undeniable improvement in side effects related to depression [145–150]. Curcumin has been shown in multiple studies to reduce inflammation. The curcumin-treated groups also had higher levels of IL-1 and TNF, plasma BDNF, and lower levels of salivary cortisol, indicating that curcumin has a stimulant function. These results were in addition to significantly higher levels of Leptin, substance P, thromboxane B2, increased plasma endothelin-1, and in the urine. [155].

Conclusion

Since the beginning of time, engineering item therapy has been built on the usage of ordinary item cures. Azadirachta indica leaf extract has anti-malarial and antiretroviral effectiveness without any negative side effects. Aloe Vera gel contains poly saccharide, which has many healing characteristics and works well when applied to a particular natural movement. Camphor, 1, 8-cineole, and thyone are used to treat infections. Both an antiaphrodisiac and a sexual enhancer, camphor is employed. According to research on curcumin, which is a plant product, it contains a variety of antiviral effects. The study found that compared to unsaturated oils, cocos nucifera oil was more protective. Several qualities of Prunus dulcis oil include properties that are relaxing, resistance-enhancing, and anti-hepatotoxic. The entire potential of kaempferol is shown by its usage in illness prevention. Numerous organic citrus fruits are likewise renowned for their powerful exercises. Due to areas of strength for its resistance to diseases and illnesses, basic homegrown components may have amazing applications in the ultimate fate of materials. In order to better comprehend its organisation and effects, more applications have been found as a consequence of research from diverse angles. Additional in vivo and in vitro testing can produce more conclusive outcomes for the usage of homegrown medications and may demonstrate significant effectiveness against recently emerging diseases like COVID-19.

References

1. Telles. S, Pathak. S, Singh. N, Balkrishna. A, Research on traditional medicine: what has been done, the difficulties, and possible solutions; Evidence-Based Complementary and Alternative Medicine, 2014; 1-5.

2. Sharma. P.V., Caraka Samhita, Chaukhambha orientalia, Varanasi, India, 2011.

3. Bodeker. G, Burford. G, Traditional, Complementary and Alternative Medicine Policy and Public Health Perspectives, Imperial College Press, London, UK, 2007.

4. Lin.L, Hsu.W, Lin.C, Antiviral natural product and herbal medicines; Journal of Traditional and Complementary Medicines, 2014; 4(1), 24-35.

5. Udeinya.L, Mbah.A, Chijioke.C, Shu.E, An antimalarial extract from neem leaves is antiretroviral; Transactions of the Royal Society of Tropical Medicine and Hygiene, 2004; 98, 435-437.

6. Khanam.Z, Al-yousef.H, Singh.O, Bhat.I, neem oil; green pesticides handbook, 2017; 377-398.

7. Brahmachari. G, Neem – An omnipotent plant: a retrospection;ChemBioChem, 2004; 5, 408-421.

8. Mathew.D, Hus.W, Antiviral potential of curcumin; Journal of Functional Foods, 2018; 40, 692-699.

9. Amalraj.A,Pius.A, Gopi.A, Gopi.S, Biological activities of curcuminoids, other biomoleculecules from turmeric and their derivatives- A review; Journal of Traditional and Complementary Medicine, 2017; 7, 205-233.

10. Mounce.B, Cesaro.T, Carrau.L, Vallet.T, Vignuzzi.M, Curcumin inhibits zika and chikungunyavirus infection by inhibiting cell binding; Antiviral Research, 2017; 142, 148-157.

11. Sokolova.A, Yarovaya.O, Baev.D, Shernyukov.A, Shtro.A, Zarubbaev.V, Salakhutdinov.N, Aliphatic and alicyclic camphor imines as effective inhibitors of influenza virus H1N1; European Journal of Medicinal Chemistry, 2016; 1-10.

12. Juteau. F, Masotti. V, Bessière. J.M, Dherbomez. M, Viano. J., Antibacterial and antioxidant activities of Artemisia annua essential oil; Fitoterapia, 2002; 73, 532– 535.

13. Tirillini. B, Velasquez. E.R, Pellegrino. R, Chemical composition and antimicrobial activity of essential oil of Piper angustifolium;Planta Med, 1996; 62, 372–373.

14. Kamdem. D.P, Gage. DA, Chemical composition of essential oil from the root bark of Sassafras albidum; Planta Med, 1995; 61, 574–575.

15. Viljoen. A, van Vuuren. S, Ernst. E, Klepser. M, Demirci. B, Baser. H, van Wyk. B, Osmitopsis astericoides (Asteraceae) — The antimicrobial activity and essential oil composition of a Cape-Dutch remedy; J. Ethnopharmacol., 2003; 88, 137–143.

16. Hammerschmidt. F.J, Clark. A.M, Soliman. F.M, El-Kashoury. E.S, Abd ElKawy. M.M, El-Fishawy. A.M, Chemical composition and antimicrobial activity of essential oils of Jasonia candicans and J. montana;Planta Med, 1993; 59, 68– 70.

17. Chen.W, Vermaak.L, Viljoen.A, Camphor- A fumigant during the black death and a coveted fragrant wood in ancient Egypt and Babylon- A review; Molecules, 2013; 18, 5434-5454.

18. Van Wyk. B.E, van Oudtshoorn. B, Gericke. N, Medicinal plants of South Africa, 2nd ed.;Briza Publications: Pretoria, South Africa, 2009; p. 92.

19. Hamman.J, composition and application of aloe vera leaf gel; Molecules, 2008; 13, 1599-1616.

20. Talmadge. J, Chavez. J, Jacobs. L, Munger. C, Chinnah. T, Chow. J.T, Williamson. D, Yates. K, Fractionation of aloe-Vera L. inner gel, purification and molecular profiling of activity; Int. Immunopharmacol, 2004; 4, 1757-1773.

21. Ni. Y, Turner. D, Yates. K.M, Tizard. I, Isolation and characterisation of structural components of aloe-Vera L. leaf pulp; Int. Immunopharmacol, 2004; 4, 1745-1755.

22. Reynolds. T, Dweck. A.C, Aloe-Vera leaf gel: A review update; J. Ethnopharmacol, 1999; 68, 3-37.

23. Kar.S, Bera.T, Phytochemical constituents of aloe vera and their multifunctional properties: a comprehensive review; International Journal of Pharmaceutical Sciences and Research, 2018, 9(4), 1416-1423.

24. Zhao. Q, Chen. X, Martin. C, Scutellaria baicalensis, the golden herb from the garden of Chinese medicinal plants;Life and Medical Science; 2016, 61(18), 13911398.

25. Nakahara. K, Kawabata. S, Ono. H, et al, Inhibitory effect of oolong tea polypheonols on glucosyltransferases of mutans streptococci; Appl. Environ Microbiol, 1993; 59, 968-973.

26. Hamilton-Miller. J, Anti-cariogenic properties of tea (camellia sinensis);The Pathological Society of Great Britain and Ireland, 2001; 50, 299-302.

27. Jemal. R, Siegel. E, Ward. T, Xu. J, Thun. M.J, Cancer statistics; A Cancer J Clin., 2007; 57(1), 43-66.

28. Rang. H.P, Dale. M.M, Ritter. J.M, Moore. P.K, Dale. R, Pharmacology (5th edition); Elsevier published by India private limited, New Delhi, 2005; 493.

29. Srinivasan. R, Natrajan. D, Shivkumar. M, Nagamurugan. N, Isolation of fiestin from elaeagnus indica serv. bull. (elaeagnaceae) with antioxidant and antiproliferative activity;Free Radicals and Antioxidants, 2016; 6(2), 145-150.

30. Lee. Y, Lee. Y, Lee. C, Jung. J, Han. S, Hong. J, Therapeutic applications of coumpounds in the magnolia family;Pharmacology and Therapeutics, 2011; 130, 157-176.

31. El-Chaghaby. G, Ahmad. A, Ramis. E, Evaluation of the antioxidant and antibacterial properties of various solvents extracts of ammona squamosal L. leaves; Arabian Journal of Chemistry, 2014; 7, 227-233.

32. Li. H, Ji. H.S, Kang. J.H, Shin. D.H, Park. H.Y, Choi. M.S, Lee. C.H, Lee. I.K, Yun. B.S, Jeong. T.S, Soy leaf extract containing kaempferol glycosides and pheophorbides improves glucose homeostasis by enhancing pancreatic β-cell function and supressing hepatic lipid accumulation in db/db mice; J. Agric. Food.

Chem, 2015; 63, 7198-7210.

33. Calderon-Montano. J.M, Burgos-Moron. E, Perez-Guerrero. C, Lopez-Lazaro. M, A review on the dietary flavonoid kaempferol; Mini Rev. Med. Chem., 2011; 11, 298-344.

34. Imran. M, Salehi. B, Sharifi-rad. J, Gondal. T, Saeed. F, Imran. A, Shahbaz. M, Fokou. P, Arshad. M, Khan. H, Guerreiro. S, Martins. N, Estevinho. L, Kaempferol: a key to its anticancer potential; Molecules, 2019; 24, 2277.

35. Pei. J, Chen. A, Zhao. L, Cao. F, Ding. G, Xiao. W, One-pot synthesis of hyperoside by a three-enzyme cascade using a UDP-galactose regeneration system; J. Agric. Food. Chem., 2017; 65, 6042-6048.

36. Neuhouser. M.L, Dietary flavonoids and cancer risk: evidence from human population studies; Nutr. Cancer, 2004; 50, 1-7.

37. Negri. E, Vecchia. L, Franceschi. S, D' Avanzo. B, Parazzini. F, Vegetable and fruit consumption and cancer risk; Int. J. Cancer, 1991; 48, 350-354.

38. Austoker. J, Prevention in primary care: diet and cancer; BMJ, 1994; 308, 16101614.

39. Silalahi. J, Anticancer and health protective properties of citrus fruit components;Asia Pacific J Clin Nutr, 2002; 11(1), 79-84.

40. Israili. Z, Antimicrobial properties of honey;American Journal of Therapeutics, 2014; 21, 304-323.

41. Mitsui. N, Noro. T, Kuroyanagi. M, Miyase. T, Umehara. K, Ueno. A, Monoamine oxidase inhibitors from cinchonae cortex; Chem. Pharm. Bull, 1989; 37(2), 363-6.

42. Gurung. P, De. P, Spectrum of biological properties of cinchona alkaloids: a brief review; Journal of Pharmacognosy and Phytochemistry, 2017; 6(4), 162-166.

43. Alonso. J, Tratado de fitofarmacos y nutraceuticos; Barcelona: Corpus, 2004; 897-901.

44. Yadav. M, Jain. S, Bhardwaj. A, Nagpal. R, Puniya. M, Tomar. R, Singh. V, Prakash. O, Prasad. G, Marotta. F, Yadav. H, Biological and medicinal properties of grapes and their bioactive constituents: an update;Journal of Medicinal Food, 2009; 12(3), 473-484.

45. Yildirim.F, Avinc.O, Yavas.A, Sevgisunar.G, Sustainable antifungal and antibacterial textiles using natural resources; 2020;111-179.

46. Rajasekaran. S, Ravi. K, Sivagnanam. K, Subramanian. S, Beneficial effects of aloe vera leaf gel extract on lipid profile status in rats with streptozotocin diabetes; Clin. Exp. Pharmacol. Physiol., 2006; 33, 232-237.

47. Boudreau. M.D, Beland. F.A, An evaluation of the biological and toxicological properties of aloe barbadensis (miller), aloe vera; Journal of Environmental Science and Health, 2006; 24, 103-154.

48. Strickland. F.M, Immune regulation by polysaccharides: implications for skin cancer; J. Photochem. Photobiol. B, 2001; 63, 132-140.

49. Zhang. L, Tizard. I, Activation of a mouse activation macrophage cell line by accemannan: The major carbohydrate fraction from aloe vera gel, Immunopharmacology, 1996; 35, 119-128.

50. Chow. J, Williomson. D, Yates. K, Goux. W, Chemical characterization of the immunomodulating polysaccharide of aloe vera L.; Carbohydrate Research, 2005; 340, 1131-1142.

51. Im. S, Oh. S, Song. S, Kim. Mi, Kim. D, Woo. S, Jo. T, Park. Y, Lee. C, Identification of optimal molecular size of modified aloe polysaccharides with maximum immunomodulatory activity, International Immunopharmacology, 2005; 5, 271-279.

52. Pugh. N, Ross. S, ElSohly. M, Pasco. D, Characterization of aloeride, a new highmolecular-weight polysaccharide from aloe vera with potent immunostimulatory activity, J. Agric. Food Chem., 2001; 49, 1030-1034.

53. Reynolds. T, Dweck. A.C., Aloe vera leaf gel: a review update, Journal of Ethanopharmacology, 1999; 68, 3-37.

54. Vazquez. B, Avila. G, Segura. D, Escalante. B, Anti-inflammatory activity of extracts from aloe vera gel; J. Ethnopharmacol, 1996; 55, 69-75.

55. Prabjone. R, Thong-Ngam. D, Wisedopas. N, Chatsuwan. T, Patumraj. S, Antiinflammatory effects of aloe vera on leukocyte-endothelium interaction in the gastric microcirculation of Helicobacter pylori-infected rats; Clin. Hemorheol. Microcirc., 2006; 35, 359-366.

56. Langmead. L, Makins. R.J., Rampton. D.S., Anti-inflammatory effects of aloe vera gel in human colorectal mucosa in vitro, Aliment Pharmacol Ther, 2004; 19, 521-527.

57. W.Choi. S, W.Son. B, S.Son. Y, I.Park. Y, K.Lee. S, H.Chung. M, The woundhealing effect of a glycoprotein fraction isolated from aloe vera, British Journal of Dermatology, 2001; 145, 535-545.

58. Yusuf. S, Agunu. A, Diana. M, The effect of aloe vera A. berger (Liliaceae) on gastric acid secretion and acute gastric mucosal injury in rats; J. Ethnopharmacol, 2004; 93, 33-37.

59. Dal'Belo. S, Gaspar. L, Campos. P, Moisturizing effect of cosmetic formulations containing aloe vera extract in different concentrations assessed by skin bioengineering techniques, Skin Research and Technology, 2006; 12, 241-246.

60. Chandan. B.K, Saxena. A.K, Shukla. S, Sharma. N, Gupta. D.K, Suri. K.A, Suri. J, Bhadauria. M, Singh. B, Hepatoprotective potential of aloe barbadensis Mill. Against carbon tetrachloride induced hepatotoxicity; J. Ethnopharmacol, 2007; 111, 560-566.

61. Alves. D, Fons. L, Estepa. A, Micol. V, Membrane-related effects underlying the biological activity of the anthraquinones emodin and barbaloin, Biochemical Pharmacology, 2004; 68, 549-561.

62. Magiatis. P, Skaltsounis. A.L, Chinou. I, Haroutounian. S.A, Chemical composition and in vitro antimicrobial activity of the essential oils of three Greek Achillea species, Z. Naturforsch. C., 2002; 57, 287-290.

63. De Heluani. C.S, De Lampasona. M.P, Vega. M.I, Catalan. C.A.N, Antimicrobial activity and chemical composition of the leaf and root oils from Croton hieronymi Griseb; JEOR, 2005; 17, 351-353.

64. Zhu. S, Yang. Y, Yu. H, Ying. Y, Zou. G, Chemical composition and antimicrobial activity of the essential oils of Chrysanthemum indicum; J. Ethnopharmacol., 2005; 96, 151-158.

65. Kotan. R, Kordali. S, Cakir. A, Kesdek. M, Kaya. Y, Kilic. H, Antimicrobial and insecticidal activities of essential oil isolated from Turkish Salvia hydrangea DC: Ex Benth; Biochem. Syst. Ecol., 2008; 36, 360-368.

66. Juteau. F, Masotti. V, Bessiere. J, Dherbomez. M, Viano. J, Antibacterial and antioxidant activities of Artemisia annua essential oil, Fitoterapia, 2002; 73, 532535.

67. Sokmen. A, Vardar-Unlu. G, Polissiou. M, Daferera. D, Sokmen. M, Donmez. E, Antimicrobial activity of essential oil and methanol extracts of achillea sintensisii Hub. Mor. (Asteraceae), Phytotherapy Research, 2003; 17, 1005-1010.

68. Ouattara. B, Simard. R.E, Holley. R.A, Piette. G.J.P, Begin. A, Antibacterial activity of selected fatty acids and essential oils against six meat spoilage organisms; Int. J. Food Microbiol., 1997; 37, 155-162.

69. Tabanca. N, Demirci. B, Baser. K.H.C, Aytac. Z, Ekici. M, Khan. S.I, Jacob. M.R, Edge. D.E, Chemical composition and antifungal activity of Salvia macrochlamys and Salvia recognita essential oils; J. Agric. Food Chem., 2006; 54, 6593-6597.

70. Logu. A, Loy. G, Pellerano. M, Bonsignore. L, Schivo. M, Inactivation of HSV-1 and HSV-2 and prevention of cell-to-cell virus spread by santolina insularis essential oil, Antiviral Research, 2000; 48, 177-185.

71. McKemy. D, Neuhausser. W, Jullus. D, Identification of a cold receptor reveals a general role for TRP channels in thermosensation, Nature, 2002; 416, 52-58.

72. McKemy. D, How cold is it? TRPM8 and TRPAl in the molecular logic of cold sensation, Molecular Pain; 2005; 1(16), 1-7.

73. Kumar. N, Nepali. K, Sapra. S, Bijjem. K, Kumar. R, Suri. O, Dhar. K, Effect of nitrogen insertion on the antitussive properties of methanol and camphor; Medical Chemistry Research, 2012; 21, 531-537.

74. Xu. H. Blair. N, Clapham. D, Camphor activates and strongly desensitizes the transient receptor potential vanilloid subtype 1 channel in a vanilloid-independent mechanism, The Journal of Neuroscience, 2005; 25(39), 8924-8937.

75. James. D, Adams. Jr., The use of California sagebrush (Artemisia californica) liniment to control pain, Pharmaceuticals, 2012; 5, 1045-1053.

76. Ghanta. V.K, Hiramoto. N.S, Solvason. H.B, Tyring. S.K, Spector. N.H, Hiramoto. R.N, Conditioned enhancement of natural killer cell activity, but not interferon, with camphor or saccharin-LiCL conditioned stimulus; J. Neurosci. Res., 1987; 18, 10-15.

77. Banerjee. S, Welsch. C.W, Rao. A.R, Modulatory influence of camphor on the activities of hepatic carcinogen metabolizing enzymes and the levels of hepatic and extrahepatic reduced glutathione in mice; Cancer Lett., 1995, 88, 163-169.

78. Goel. H.C, Roa. A.R, Radiosensitizing effect of camphor on transplantable mammary adenocarcinoma in mice; Cancer Lett.,1988; 43, 21-27.

79. Goel. H.C, Sing. S, Sing. S.P, Radiomodifying influence of camphor on sisterchromatid exchange induction in mouse bone marrow; Mutat. Res.,1989; 224, 157-160.

80. Nikolic. B, Culafic. D, Gacic. B, Vukcevic. J, Modulation of genotoxicity and DNA repair by plant monoterpenes camphor, eucalyptol and thujone in escheria coli and mammalian cells, Food and Chemical Toxicology, 2011; 49, 2035-2045.

81. De-Oliveira. A.C, Ribeiro-Pintob. L.F, Paumgartten. F.J.R, In vitro inhibition of CYP2B1 monooxygenase by beta-myrcene and other monoterpenoid coumpounds; Toxicol. Lett.,1997; 92, 39-46.

82. Simic. D, Vukovic-Gacic. B, Knezevic-Vukcevic. J, Detection of natural bioantimutagens and their mechanisms of action with bacterial assay-system; Mutation Research, 1998; 402, 51-57.

83. Vukovic-Gacic. B, Nikcevicl. S, Beric-Bjedova. T, Knezevic-Vukcevic. J, Simic. D, Antimutagenic effect of essential oil of sage (Salvia officinalis L.) and its monoterpenes against UV-induced mutations in Escherichia Coli and Saccharomyces cerevisiae; Food Chem. Toxicol., 2006; 44, 1730-1738.

84. Rozman. V, Kalinovic. I, Korunic. Z, Toxicity of natural occurring compounds of Lamiaceae and Lauraceae to three stored-product insects; J. Stored Prod. Res., 2006; 43, 349-355.

85. Liska. A, Rozman. V, Kalinovic. I, Ivezic. M, Balicevic. R, Contact and fumigant activity of 1,8-cineole, eugenol and camphor against tribolium castaneum (herbst), 2010; 425, 716-720.

86. Quanti. Li, Yongcheng. S, Studies on effect of several plant materials against stored grain insects; 836-844.

87. Belz. G.G, Breithaupt-Grogler. K, Butzer. R, Herrmmann. V, Malerczyk. C, Mang. C, Roll. S, Klinische Pharmakologie von D-camphor; In Phytopharmaka VI, Rietbrock. N, Ed, Steinkopff Verlag: Darmstadt, Germany, 2000; 21-28.

88. Belz. G, Loew. D, Dose-response related efficacy in orthostatic hypotension of a fixed combination of D-camphor and an extract from fresh crataegus berries and the contribution of the single components, Phytomedicine, 2003; 10, 61-67.

89. Yano. T, Kanetake. T, Saita. M, Noda. K, Effects of l-methanol and dl-camphor on the penetration and hydrolysis of methyl salicylate in hairless mouse skin, J. Pharmacobio-Dyn., 1991; 14, 663-669.

90. Jain. R, Aqil. M, Ahad. A, Ali. A, Khar. R.K, Basil oil is a promising skin penetration enhancer for transdermal delivery of labetolol hydrochloride; Drug Develop. Ind. Pharma., 2008; 34, 284-389.

91. Okamota. Y, Yamahi. K, Kobayashi. K, Allelopathic activity of camphor released from camphor tree (Cinnamomum camphora); Allelopathy J., 2011; 27, 123-132.

92. De. Martino. L, Mancini. E, De. Almeida. L.F.R, De. Feo. V, The antigerminative activity of twenty-seven monoterpenes, Molecules, 2010; 15, 6630-6637.

93. Jamshidzadeh. A, Sajedianfard. J, Nekooeian. A.A, Tavakoli. F, Omrani. G.H, Effects of camphor on sexual behaviours in male rats; IJPS, 2006; 2, 209-214.

94. Nikravesh. M.R, Jalali. M, The effect of camphor on the male mice reproductive system; Urol. J., 2004; 1, 268-272.

95. Allen. P.C, Lydon. J, Danforth. H.D, Effects of components of Artemisia annua on coccidia infections in chickens; Poult Sci.,1997; 76, 1156-1163.

96. Tariku. Y, Hymete. A, Hailu. A, Rohloff. J, In vitro evaluation of antileishmanial activity and toxicity of essential oils of Artemisia absinthium and Echinops kebericho; Chem. Biodivers.,2011; 8, 614-623.

97. Rathore.S, Mukim.M, Sharma.P, Devi.S, Nagar.J, Khalid.M, Curcumin: A review for health benefits; International Journal of Research and Review, 2020, 7(1), 273-290.

98. Gupta.A.P, Khan.S, Manzoor.M.M, Yadav.A.K, Sharma.G, Anand.R, Gupta.S, Anticancer curcumin: Natural analouges and structure-activity relationship. In studies of Natural Products Chemistry; Elsevier, 2017; 54, 355-401.

99. Dulbecco. P, Savarino. V, Therapeutic potential of curcumin in digestive diseases; World Journal of Gastroenterology, 2013; 19(48), 9256.

100. Maheshwari. R.K., Singh. A.K., Gaddipati. J, Shrimal. R.C., Multiple biological activities of curcumin: a short review; Life Sciences, 2006; 78(18), 2081-2087.

101. Koohpar. Z.K, Entezari. M, Movafag. A, Hashemi. M, Anticancer activity of curcumin on human breast adenocarcinoma: role of Mcl-1 gene;Iranian Journal of Cancer Prevention, 2015; 8(3), 2231.

102. Sayer. A, Yeast is a cause of cancer and turmeric can kill both; Research Confirms. Research, 2015; 4(2), 339.

103. Zhang. Q, Li. D, Liu. Y, Wang. H, et al, Potential anticancer activity of curcumin analogs containing sulfone on human cancer cells; Archives of Biological Sciences, 2016; 68(1), 125-133.

104. Siegel. R, Ma. J, Zou. Z, Jemal. A, Cancer statistics; A Cancer Journal for Clinicians, 2014; 64(1), 929.

105. Hilles. A.R, Mahmood. S.A, A review on phytochemistry and pharmacological effects of Trigonella foenumgraecum; Advanced Herbal Medicine, 2016; 2(3), 61-

67.

106. Naik. S.R, Thakare. V.N, Patil. S.R, Protective effect of curcumin on experimentally induced inflammation, hepatotoxicity and cardiotoxicity in rats: evidence of its antioxidant property; Experimental and Toxicologic Pathology, 2011; 63(5), 419-431.

107. Kim. J, Lee. H.J, Lee. K.W, Naturally occurring phytochemicals for the prevention of Alzhiemer's disease; Journal of Neurochemistry, 2010; 112(6), 1415-1430.

108. Panahi. Y, Hosseini. M.S, Khalili. N, Naimi. E, et al, Effects of curcumin on serum cytokine concentrations in subjects with metabolic syndrome: A post-hoc analysis of randomized controlled trial; Biomed. Pharmacother. , 2016; 82, 578582.

109. Lin. Y.G, Kunnumakkara. A.B, Nair. A, Merritt. W.M, et al, Curcumin inhibits tumour growth and angiogenesis in ovarian carcinoma by targeting the nuclear factor-kB pathway; Clin. Cancer. Res., 2007; 13, 3423-3430.

110. Marchiani. A, Rozzo. C, Fadda. A, Delogu. G, Ruzza. P, Curcumin and curcumin-like molecules: from spice to drugs; Curr. Med. Chem.,2014; 21, 204222.

111. Sahebkar. A, serbanc. M.C, Ursoniuc. S, Banach. M, Effect of curcuminoids on oxidative stress: A systematic review and meta-analysis of randomized controlled trials; J. Funct. Foods. , 2015; 18, 898-909.

112. Menon. V.P, Sudheer. A.R, Antioxidant and anti-inflammatory properties of curcumin; Adv. Exp. Med. Biol., 2007; 595, 105-125.

113. Panahi. Y, Alishri. G.H, Parvin. S, Sahebkar. A, Mitigation of systematic oxidative stress by curcuminoids in osteoarthritis: Results of a randomized controlled trial; J. Diet. Suppl., 2016; 13, 209-220.

114. Priyadarsini. K.I, Maity. D.K, Naik.G.H, Kumar. M.S, Unnikrishnan. M.K, Satav. J.G, Mohan. H, Role of phenolic O-H and methylene hydrogen on the free radical reactions and antioxidant activity of curcumin; Free Radic. Biol.

Med.,2003; 35, 475-484.

115. Duvoix. A, Blasius. R, Delhalle. S, Schnekenburger. M, et al, Chemopreventive and therapeutic effects of curcumin; Cancer Letters, 2003; 223(2), 181-190.

116. Anand. P, Sundaram. C, Jhurani. S, Kunnumakkara. A.B, Aggarwal. B.B,

Curcumin and cancer: an “old-age” disease with an “age-old” solution; Cancer Letters, 2008; 267(1), 133-164.

117. Bar-Sela. G, Epelbaum. R, Schaffer. M, Curcumin as an anti-cancer agent: review of the gap between basic and clinical applications; Current Medicinal Chemistry, 2010; 17(3), 190-197.

118. Ravindran. J, Prasad. S, Aggarwal. B.B, Curcumin and cancer cells: how many ways can curry kills tumor cells selectively; The AAPS Journal, 2009; 11(3), 495510.

119. Rubagotti. S, Croci. S, Ferrari. E, Orteca. G, Iro. M, Capponi. P.C, Vesari. A, Asti. M, Uptake of Ga-curcumin derivatives in different cancer cell lines: Toward the development of new potential 68 Ga-labelled curcuminoids-based radiotracers for tumour imaging, Journal of Inorganic Biochemistry, 2017; 173, 113-119.

120. Stanic. Z, Curcumin, a compound from natural sources, a true scientific challenge-a review, Plant Foods for Human Nutrition, 2017; 72(1), 1-12.

121. Allegra. A, Innao. V, Russo. S, Gerace. D, Alonci. A, Musolino. C, Anticancer activity of curcumin and its analogues preclinical and clinical studies, Cancer Investigation, 2017; 35(1), 1-22.

122. Tsekov. P.B, Spasova. M.G, Manolova. N.E, Markova. N.D, Rashkov. I.B, Electrospun curcumin-loaded cellulose acetate/polyvinylpyrrolidone fibrous materials with complex architecture and antibacterial activity, Materials Science and Engineering, 2017; 73, 206-214.

123. No. D.S, Algburi. A, Huynh. P, Moret. A, Ringard. M, Comito. N, Drider. D, Takshitov. P, Chikindas. M.L, Antimicrobial efficacy of curcumin nanoparticles against listeria monocytogenes is mediated by surface charge, Journal of Food Saftey, 2017; 3(7), 21-27.

124. Sintara. K, Thong-Ngam. D, Patumraj. S, Klaikeaw. N, Chatsuwan. T, curcumin suppresses gastric NF-kB activation and macromolecular leakage in helicobacter pylori-infected rats, World Journal of Gastroenterology, 2010; 16(32), 4039.

125. De. R, Kundu. P, Swarnakar. S, Ramamurthy. T, Chowdhury. A, Nair. G.B, Mukhopadhyay. A.K, Antimicrobial activity of curcumin against helicobacter pylori isolates from India and during infections in mice; Antimicrobial Agents and Chemotherapy, 2009; 53(4), 1592-1597.

126. Shuping. D.S.S, Eloff. J.N, The use of plants to protect plants and food against fungal pathogens: a review, African Journal of Traditional, Complementary and Alternative Medicines, 2017; 14(4), 120-127.

127. Upendra. R.S, Khandelwal. P, Reddy. A.M, Turmeric powder (curcuma longa linn.) as an antifungal agent in plant tissue culture studies, International Journal of engineering science, 2011; 3(11), 7899-7904.

128. Khan. N, Shreaz. S, Bhatia. R, Ahmad. S.I, Muralidhar. S, Manzoor. N, Khan.

L.A, Anticandidal activity of curcumin and methyl cinnamaldehyde; Fitoterapia,2012; 83(3), 434-440.

129. Subhashini. P.S, Kumari. S, Kumar. J.P, Chawla. R, Dash. D, et al., Intranasal curcumin and its evaluation in murine model of asthma; International Immunopharmacology, 2013; 17(3), 733-743.

130. Yang. X.X, Li. C.M, Li. Y.F, Wang. J, Huang. C.Z, Synergistic antiviral effect of curcumin functionalized graphene oxide against respiratory syncytial virus infection; Nanoscale, 2017; 9(41), 16086-16092.

131. Buckley. D, Fraser. A, Huang. G, Jiang. X, Recovery optimization and survival of the human Norovirus surrogates Feline Calicivirus and Murine Norovirus on carpet; Applied and Environmental Microbiology, 2017; 83(22), e01336-17.

132. World Health Organization, launched the Global Initiative for Childhood Cancer, 2017; 18(6), 719-731.

133. Fu. W, Zhuang. W, Zhou. S, Wang. X, Plant-derived neuroprotective agents in Parkinson's disease; American Journal of Translational Research, 2015; 7(7), 1189.

134. Ghosh. N, Ghosh. R, Mandal. S.C, Antioxidant protection a promising therapeutic intervention in neurodegenerative disease; Free Radical Research, 2011; 45(8), 888-905.

135. Wise. R, Hart. T, Cars. O, Streulens. M, Helmuth. R, Huovinen. P, Sprenger. M, Antimicrobial resistance is a major threat to public health; British Medical Journal, 1998; 317(7159), 609.

136. Samy. P.R, Gopalakrishnakone. P, Therapeutic potential of plants as antimicrobial for drug discovery; Evidence Based Complementary and Alternative Medicine, 2010; 7(3), 283-294.

137. Sahebkar. A, Mohammadi. A, Atabati. A, Rahiman. S, Tavallaie. S, et al, Curcuminoids modulate pro-oxidant – antioxidant balance but not the immune response to heat shock protein 27 and oxidized LDL in obese individuals; Phytotherapy Research, 2013; 27, 1883-1888.

138. Panchatcharam. M, Miriyala. S, Gayathri. V.S, Suguna. L, Curcumin improves wound healing by modulating collagen and decreasing reactive oxygen species; Molecular and Cellular Biochemistry, 2006; 290(1), 87-96.

139. Chereddy. K.K, Coco. R, Memvanga. P.B, Ucakar. B, Des Rieux. A, Vandermeulen. G, Preat. V, Combined effect of PLGA and curcumin on wound healing activity; Journal of Controlled Release, 2013; 171(2), 208-215.

140. Aggarwal. B.B, Harikumar. K.B, Potential therapeutic effects of curcumin, the anti-inflammatory agent, against neurodegenerative, cardiovascular, pulmonary, metabolic, autoimmune and neoplastic diseases; The International Journal of Biochemistry and Cell Biology, 2009; 41(1), 40-59.

141. Hussain. Z, Thu. H.E, Ng. S.F, et al, Nanoencapsulation an efficient and promising approach to maximize wound healing efficacy of curcumin: A review of new trends and state-of-the-art; Colloids and Surface B. Biointerface, 2017; 150, 223-241.

142. Tejada. S, Manayi. A, Daglia. M, Nabavi. S.F, Sureda. A, Hajheydari. Z, et al, Wound healing effects of curcumin: A short review; Current Pharmaceutical Biotechnology, 2016; 17(11), 1002-1007.

143. Cox. K.H, Pipingas. A, Scholey. A.B, Investigation of the effects of solid lipid curcumin on cognition and mood in a healthy order population; Journal of Psychopharmacology, 2015; 29, 642-651.

144. Small. G.W, Siddarth. P, Miller. K.J, Memory and brain amyloid and tau effects of a bioavailable form of curcumin in non-demented adults: a double-blind, placebo-controlled 18-month trial; The American Journal of Geriatric Psychiatry, 2018; 26, 266-277.

145. Lopresti. A.L, Maes. M, Meddens. M.J, Maker. G.L, Arnoldussen. E, Drummond. P.D, Curcumin and major depression: a randomised, double-blind, placebo-controlled trial investigating the potential of peripheral biomarkers to predict treatment response and antidepressant mechanisms of change; European Neuropsychopharmacology, 2015; 25, 38-50.

146. Lopresti. A.L, Maes. M, Maker. G.L, Hood. S.D, Drummond. P.D, Curcumin for the treatment of major depression: a randomised, double-blind, placebo controlled study; Journal of Affective Disorders, 2014; 167, 368-375.

147. Yu. Y.Y, Pei. L.B, Zhang. Y, Wen. Z.Y, Yang. J.L, Chronic supplementation of curcumin enhances the efficacy of antidepressants in major depressive disorder: a randomized, double-blind, placebo-controlled pilot study; Journal of Clinical Psychopharmacology, 2015; 35, 406-410.

148. Esmaily. H, Sahebkar. A, Iranshahi. M, Ganjali. S, Mohammadi. A, Ferns. G, Ghayour-Mobarhan. M, An investigation of the effects of curcumin on anxiety and depression in obese individuals: a randomised controlled trial; Chinese Journal of Integrative Medicine, 2015; 21, 332-338.

149. Bergman. J, Miodownik. C, Bersudsky. Y, Sokolic. S, Curcumin as an add-on to antidepressive treatment: a randomised, double-blind, placebo-controlled, pilot clinical study; Clinical Neuropharmacology, 2013; 36, 73-77.

150. Sanmukhani. J, Satodia. V, Trivedi. J, Patel. T.D, et al, Efficacy and safety of curcumin in major depressive disorder: a randomized controlled trial; Phytotherapy Research, 2014; 28, 579-585.

151. Panahi. Y, Hosseini. M.S, Khalili. N, Naimi. E, Majeed. M, Sahebkar. A, Antioxidant and anti-inflammatory effects of curcuminoid-piperine combination in subjects with metabolic syndrome: a randomized controlled trial and an updated meta-analysis; Clinical Nutrition, 2015; 34, 1101-1108.

152. Biswas. N, Gupta. S, Das. S, Kumar. N, Mongre. P, Haldar. D, Beri. S, Evaluation of Ophthacare eye drops-a herbal formulation in the management of various ophthalmic disorders; Phytotherapy research, 2001; 15, 618-620.

153. Lal. B, Kapoor. A, Asthana. O, Agrawal. P, Prasad. R, Kumar. P, Srimal. R,

Efficacy of curcumin in the management of chronic anterior uveitis; Phytotherapy Research International Journal Devoted to Pharmacological, 1999; 13, 318-322.

154. Allegri. P, Mastromarino. A, Neri. P, Management of chronic anterior uveitis relapses: efficacy of oral phospholipidic curcumin treatment; Clinical Ophthalmology, 2010; 4, 1201.

155. Mazzolani. F, Togni. S, Oral administration of a curcumin-phospholipid delivery system for the treatment of central serous chorioretinopathy; Clinical Ophthamology, 2013; 7, 939.