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STUDYING THE IMPORTANCE OF OATS AND CARVINE SEEDS IN FOLK MEDICINE

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Abstract
The article analyzes information on the chemical composition, medicinal properties , and scientific medical applications of oat (Avena sativa L.) and coriander seeds (Coriandrum sativum L) . These plants have medicinal properties and are used to treat many diseases, including cardiovascular, neurological, gastrointestinal, respiratory, metabolic, renal, and hepatic diseases. This review provides an understanding of the role of these plants in medicine in the treatment of various diseases.

Keywords: Avena sativa L., Coriandrum sativum L, diabetes, obesity, antioxidant, hepatoprotective, anti - inflammatory, cardiovascular diseases.

Introduction

The number of patients suffering from metabolic diseases, including diabetes and cardiovascular diseases, is increasing rapidly worldwide. In 2016, 650 million people were diagnosed with obesity, and it is estimated that by 2030, about 23.6 million people will die from cardiovascular diseases [18]. According to the World Health Organization, cardiovascular diseases are currently the leading cause of death worldwide [16;17].

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In addition to effective control of hyperglycemia, the treatment of diabetes mellitus should also have a positive effect on dyslipidemia. Most of the currently available antidiabetic drugs do not have a positive effect on lipid parameters and risk factors. Therefore, new therapeutic agents with relatively low adverse effects are needed to simultaneously correct hyperglycemia and dyslipidemia.

For this reason, there is currently a growing interest in folk medicine worldwide. Plants are rich sources of various secondary metabolites with high antioxidant properties. Pharmaceutical products derived from medicinal plants are used in medicine due to their beneficial properties and fewer complications compared to surgical and chemical drugs. Diets rich in fruits and vegetables are reported to reduce the risk of cardiovascular diseases. Herbal medicine is used to treat many diseases worldwide, including about 800-1200 plants used in the traditional treatment of diabetes [5]. Coriander seeds and oats are widely used in folk medicine to treat many diseases. This review helps to better understand the properties and biological activities of these plants and provides new directions for future research.

Coriandrum sativum **L. Along with medicinal plants ,** one of the most useful essential oils of the spice Coriandrum sativum L. is used to treat various diseases such as diabetes, dyslipidemia, indigestion, flatulence, insomnia, kidney diseases, loss of appetite, skin diseases, stomatitis, laryngitis, headache and heart rhythm disorders. Modern studies have shown that coriander has anxiolytic, anticonvulsant, antimigraine, neuroprotective, analgesic, diuretic, antidiabetic, antimutagenic, anthelmintic, hepatoprotective, hypoglycemic, hypolipidemic, hypotensive, anticancer and antioxidant effects [9].

Coriander leaves and seeds are used in folk medicine for eye diseases, skin diseases, laryngitis, asthma, improving digestion, gastritis, vomiting, nausea,

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improving heart rate, dizziness, erectile dysfunction and increasing sexual potency [9]. The hypoglycemic and hypolipidemic effects of coriander seeds have been confirmed in in vivo experiments [1] . Many studies have shown that coriander seeds have a positive effect on lipid parameters. Coriander can modulate various enzymes of lipid metabolism pathways and reduce triglyceride (TG) and cholesterol levels. For example, the activity of 3-hydroxy-3-methyl-glutaryl-coenzyme A reductase (HMG-CoA reductase) is inhibited by C. sativum. Coriander increases the activity of LXAT and tissue lipase, which leads to increased lipid breakdown [1] . Coriander seed oil reduces LDL, TG, and LDL cholesterol, and increases LDL cholesterol. Researchers believe that the significant reduction in hepatic cholesterol levels with coriander seed administration is due to the fact that the rate of its breakdown into bile acids is higher than the rate of synthesis. In addition, increased excretion of cholesterol and phospholipids was observed in the feces of rabbits administered C.sativum seed extract. In general, coriander seed sterols and stanols reduce intestinal cholesterol absorption, increase neutral fecal sterol excretion, and prevent cholesterol accumulation in the liver [8].

Studies have shown that treatment of diabetic mice with the polyphenol fraction of coriander seeds can control blood glucose levels by affecting the activity of enzymes involved in glycolysis, gluconeogenesis, and glycogenolysis, and exhibits hypoglycemic activity [10].

Another potential cardioprotective effect of C. sativum is related to its antihypertensive properties. Methanol and aqueous extracts of coriander leaves have been shown to increase urinary sodium rather than potassium, which may be safe for its diuretic effect [15].

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coriander seeds resulted in a decrease in AST and ALT activities, an increase in hepatic antioxidant enzymes such as SOD, CAT, and GP, and hepatocyte regeneration in liver necrosis. It was also found to reduce the levels of TNF-α, NF-κB, caspase 3 , and necrosis in liver ischemia-reperfusion injury [9].
is also widely used as an antibacterial and anti -inflammatory agent [12]. The volatile components of coriander leaves (aerial parts) and seeds (fruits) have stronger antimicrobial effects than other extracts. The antimicrobial activity against bacteria and fungi is due to the inhibitory and destructive effects of the active components of coriander seed essential oils on microbes [7].

Coriander leaf and seed extracts and oil have potent antioxidant activity. C. sativum has been shown in many studies to have high antioxidant activity, which is mainly attributed to the activity of coriander polyphenols, vitamins, and sterol components [11]. Studies have shown that aqueous extracts of coriander seeds increase the levels of superoxide dismutase (SOD), catalase (CAT), and glutathione (GSH) and reduce lipid peroxidation. Methanolic extracts of coriander fruits have significant antiradical activity [1].

In particular, it should be noted that the mechanism associated with the antioxidant properties of C. sativum is the inhibition of the scavenger receptor (SRB1), which in turn reduces the number of foam cell formation and reduces atherogenic plaques. Therefore, coriander extract reduces the development of Ox-LDL in a dose-dependent manner [13;15].

Coriander essential oil also reduces the weight and size of subcutaneous tumors in a cancer model in mice [6] .

Coriander is used in traditional and folk medicine to treat insomnia, headaches, and depression. The high affinity of coriander flavonoids such as quercetin and isoquercetin for central benzodiazepine receptors, and the affinity of coriander linalool for glutamatergic and nicotinic acid, may

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contribute to anxiolytic effects. Linalool also exhibits antiepileptic and antimigraine activity. Coriander seed essential oil has been shown to improve memory, antioxidant system, lactate dehydrogenase activity, β-amyloid content, and DNA fragmentation in the hippocampus, and to reduce neuroinflammation . As the main compound of the essential oil, linalool is responsible for most of these effects. [7]

Aqueous and ethanolic extracts of coriander seeds are also reported to have analgesic properties. [1]. This is due to the fact that linalool modulates the activity of many neurotransmitter receptors.

In skin conditions, coriander seed oil can have a soothing effect on sensitive skin [8]. It is also effective in protecting against sunlight and treating dermatitis.

Scientists classify coriander fruit as a Class I plant that can be used without harm.

Avena sativa L. Avena sativa L. has a chemical composition that includes carbohydrates, sterols, lipids, proteins, alkaloids, saponins and flavonoids . In addition, it contains β-glucan, starch, amylase, vitamins and minerals . It has high antioxidant properties due to the phenolic compounds it contains. Due to its many properties, it is a plant used in medicine for the treatment and prevention of diseases [7].

Avena sativa L. is a biennial plant belonging to the Poaceae family. It grows in cool and humid climates . In folk medicine, oats are considered beneficial because they are rich in protein, fiber, vitamins and minerals. In particular, oats contain high levels of proteins and lipids, as well as essential amino acids, such as lysine and 2-6% β-glucan, and are therefore recognized as a high-value crop. Globulin accounts for 70-80% of the protein in oats. Oats contain 5-12% fat , of which about 95% are palmitic, oleic and linolenic acids, and

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75-80% are unsaturated fatty acids. These unsaturated fatty acids have various physiological properties, such as preventing dementia and exhibiting antioxidant activity. Recently, unsaturated fatty acids have been shown to reduce blood cholesterol levels, which has increased interest in oats as a functional food. Oats contain polyphenols, including caffeic acids, cumaric, gallic, hydroxybenzene, vanillic acids, etc. In addition, by- products derived from oat bran, such as proteins, β-glucan, saponin, albumin, prolamins, and glutelins, are also valuable as nutritional substances. Consumption of whole oat grains is considered beneficial for health due to its active components [3;11].

of oats reduces the risk of cardiovascular disease. In particular, β-glucan, a soluble fiber present in oats (37-43%) , is the main component responsible for lowering blood cholesterol levels. Oat proteins also reduce total cholesterol and LDL-C levels in the blood [4]. β-glucan extracted from oats has been shown to have hypoglycemic and blood pressure-regulating effects. In addition, β-glucans in oats have been shown to reduce gastrointestinal inflammation and stimulate lactobacilli in the stomach, cecum, and colon. They are considered to be the most effective against cancer and infectious diseases [2 ; 12].

Studies have shown that ethanolic extracts of oats have wound healing properties in a diabetic model, and that antioxidant flavonoids and glycoside compounds play a positive role in neuromuscular regeneration [4]. There are many studies that show that oat consumption has an effect on cardiovascular disease, cancer, and type 2 diabetes . It serves to reduce blood glucose and insulin levels in patients with diabetes [14].

The development of new dietary interventions for the treatment of diabetes is very urgent. The prevalence of diabetes has increased dramatically in recent

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years. Statistical results have shown that more than 6 million deaths were directly caused by diabetes in 2021. The prevalence of new cases is also increasing day by day. Therefore, it is very necessary to prevent diabetes and search for new dietary interventions. Honey- enriched oats have demonstrated antidiabetic effects and an effective therapeutic approach for controlling glucose levels, lipid parameters, and protecting against oxidative stress[14]. Many studies have shown that oats have an effective effect on diabetes and many other problems such as cardiovascular disease, hypertension, and dyslipidemia. β -glucan plays an important role in lowering cholesterol, glucose, and insulin levels [4].

Given the nutritional value of ordinary oats, interest in sprouted fresh oats is also gradually increasing. Germination is the process by which the seed absorbs moisture and undergoes various metabolic processes to form young roots and shoots. It has been found that during germination, the activity of various enzymes in the seed and its endosperm is high, and the maximum amount of nutrients is provided. The concentration of avenanthramide in oats increases significantly after germination compared to before germination [6]. Therefore, oats are more resilient than other plants and embody a modern plant model [4; 6].

Thus, the unique properties of oats may offer several opportunities for the development of new functional pharmacological agents in the coming years.

Conclusion

The literature review shows that shows that , oats The beneficial effects of oat (Avena sativa L.) and coriander seeds (Coriandrum sativum L) in the treatment of various diseases may be due to their richness in the class of active compounds. The data presented here indicate that these plants are a high

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source of bioactive compounds. Therefore, further studies are needed to investigate the effects of these plant components on various diseases.

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