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REVIEW ON NUTRITIONAL PROFILE OF *Medicago sativa* SEEDS

SAKSHI PANDEY[1*] AND KRUTIKA SHENMARE[1]

[1]Faculty of Agriculture and Veternairy Sciences, Jayoti Vidyapeeth Women's University, Jaipur, Rajasthan. India.

AUTHORS' CONTRIBUTIONS

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Review Article

ABSTRACT

All over the world the herbal medicine acts as the representative of the most important fields of traditional medicine. The medicinal plants are useful for healing as well as for curing of human disease because of the presence of phytochemical and antioxidant constituents. Alfalfa sprouts are often consumed as vegetable salad and their leaves and solid are sold as bulk powdered herb, capsules and tablets for nutritional supplement in health food stores. The extracts from alfalfa sprouts, leaves and roots have been indicated to be helpful in lowering cholesterol level in animal and human studies.

Keywords: Alfalfa; antioxidants; nutrients; malting.

1. INTRODUCTION

For a long period of time, Medicinal plants have been a valuable source of natural products for maintaining human health, especially in the last decade, with more intensive studies for natural therapies. They are rich in a wide variety of secondary metabolites, such as tannins, terpenoids, alkaloids, flavonoids, phenols and quinines which have been used worldwide in traditional medicine to treat several disease and infections [1]. World Health Organization (WHO) estimated that 80% population of developing countries relies on traditional medicine, mostly plant drugs for their primary health care needs. The medicinal plants are useful for healing as well as for curing of human disease to produce high yield of because of the presence of phytochemical constituents and many other bioactive components [2].

Legumes constitute all over the world, especially in the vegetarian diets of the people in developing countries. These potential legumes might be of great important in many zones of developing countries where there is a pressing need for food sources of high energy and good protein quality [3]. Legumes provide the major sources of calories and proteins for a large proportion of the world's population [4]. They also play an important role in the traditional diet of many regions throughout the world [5]. They are generally well developed to a wide range of climate and environment conditions. Legumes have high nutritional quality, palatability and versatility in food preparation [6].

1.1 Alfalfa

Alfalfa (*Medicago sativa*) belongs to the *leguminosae* family; it is called the *"father of all plants"* and is considered the green food of the millennium. This is

**Corresponding author: Email: sakship98765@gmail.com, sakshipandey@jvwu.ac.in;*

the most ancient plant, cultivated throughout the world as a fodder plant. Alfalfa is considered to be the most important forage crop for providing protein to dairy and beef cattle, sheep, horses, birds, and other livestock, it is commonly used in cattle feed and horse feed. M. sativa has a long tradition of use as Ayurvedic and homoeopathic medicine in central nervous and digestive system disorders, and for the treatment of various other ailments [7]. The interest for medicinal organisms has increased with the improvement of the techniques of extraction and processing of active products and especially of the demonstration of their efficiency in the fight against serious human diseases [8]. Lucerne use in many alternative herbal treatments. Lucerne is a valuable source of a high-quality protein in temperate climates. The aerial parts of the plant may used as forage crops in the form of green feed, hay, or pallets. The human consumption of Lucerne is generally low, but in some countries it has been an increasing interest in using alfalfa as sprouts for green salads or in the form of tablets or juices [9] (Malinow et al.,1982) for their effect in serum cholesterol. In folk medicine, Lucerne is used as an alternative herbal treatments. The medicinal value of plants lies in their phytochemical components which produce definite physiological actions in the organism. The most bioactive components are starch, carbohydrate, basic proteins (histones and L-lysine, L-arginine, aspartic and glutamic acids) Alfalfa has high contents in tannins, pectin substances, saponins, amines, carotenoids, sterols, flavones and phenolic compounds and apart from these it is a remarkable source of vitamins A, D, E, and K. an important quality of alfalfa is the strengthening of the immunity. Gawel [10] the ingredient of the alfalfa plant are used fresh, in order to maintain the essential nutrients necessary for proper functioning of the whole body [11].

Alfalfa (*Medicago sativa*) commonly known as lucerne, is an ancient crop, sometimes called as “queen of forage crops” and “green gold” is one of the medicinal plants used in traditional medicine because of its remarkable quality to produce a high yield of rich, palatable, nutritious forage under a wide range of soil and climatic conditions [12]. Alfalfa is a legume of tremendous value of highly digestible, high protein content and many other bioactive components. Alfalfa is one of the most reputed medicinal plants that grow up to three feet in height with sprightly green leaves and flowers which is blusih-voilet in colour [13]. The plant is beneficial to both humans and animals. Human benefit from alfalfa sprouts, tender stems, dehydrated leaf, seeds (available in a form of tablets, powders), while animals can take benefits in the form of forage, harvested hay and feed [14].

Sprouts of alfalfa have medicinal use in many metabolic deficiencies, are phytonutrient-rich, provide significant amounts of antioxidants [15], delays the ageing processes, beneficial effects on the menopausal symptoms, help to strengthen immune system, especially protect against infection, prevent heart disease and coronary heart disease (through decreasing plasma cholesterol) [16]. Sprouted alfalfa seeds contains saponins, it is toxic to red blood cells only in vitro(outside of the body in a test tubes), but in human consumption it is harmless and it has many health beneficial properties like anti-inflammatory, immune stimulating activity, anti-tumour activity. Saponins appear to be beneficial, being responsible for major part of cholesterol lowering effect of legumes. Saponins have a direct stimulating effect on the immune system [17]. Alfalfa contain phytoestrogens such as biochanin, daidzein, genistein which enhances the level of estrogen and hence reduces the symptoms of menopause and also prevent osteoporosis, thus helpful in maintaining healthy women aged 50-55 years old. Guan [18] Therefore, germination can lead to the development of such functional foods that have a positive effect on the human organism and that help in maintaining the health [19]. The unique supplementation of forage legumes like alfalfa is the best treatment to decrease nutritional deficiency in malnourished people of our country. To overcome all these problems different domestic methods have been proved to be beneficial for enhancing the nutritive value of alfalfa seeds and also to reduce the content of anti-nutritional factors and improve digestibility of starch and protein.

1.2 Taxonomical Classification

Kingdom: Plantae
Genus: *Medicago*
Family: Fabaceae
Species: *Sativa*
Common Name: Lasunghas, Chilean Clover, Lucerne

1.3 Health Benefits of Alfalfa Seeds

Alfalfa has been used as an herbal medicine for over 1500 years, in early Chinese medicine; physicians used seeds to treat disorder related to the digestive tract and kidneys. In Ayurveda medicine, physicians used the seeds for treating poor digestion (central council for research in homeopathy, 2005). Seeds contains many bioactive components such as phytochemical, tannins flavonoids, tannins, alkanoids, pectin substances, saponins, coumarin derivatives, triperpene, caretonoids, purine base, plant sterol, phytoestrogens, isoflavonoids, glycosides and

phenolic compounds which act as antimicrobial, anti-inflammatory, anticancer (Rathee, et al., 2009).

1.3.1 Lowering cholesterol level

Alfalfa seeds contain saponins, which appear to be beneficial, being responsible for major part of cholesterol lowering effects and also they are a excellent source of fibre which help to keep "bad" cholesterol levels down while helping to boost the "good" cholesterol level (Molgard et al., 1987).

1.3.2 Reducing cancer risk

Diet including alfalfa seeds may reduce risk of heart disease and certain cancers. Seeds are rich in saponins which inhibits cancer cells and destroy tumour causing cells particularly it is most effective in lungs and blood cancer

1.3.3 Builds immunity

An important quality of alfalfa seeds is the strengthening of the immunity saponins has a direct stimulatory effect on the immune system which builds the t lymphocytes and b lymphocytes. The ingredients of alfalfa plants are use fresh, in order to maintain the essential nutrient necessary for proper functioning of the whole body [20].

1.3.4 Reducing the risk of type II Diabetes

Previous studies showed that adding alfalfa seed in human diet can decreases the blood glucose level and improves the insulin function in reducing the plasma glucose and risk of diabetes mellitus [21].

2. SUMMARY AND CONCLUSION

As the world population increases, there is greater need for new sources of protein of high nutritive value and for formation of new types of foods. The supplement of cereals with the high protein legumes is considered to be one of the best preventable measures for the protein energy malnutrition. Medicinal food has long been integrated in the cultural and habitual dietary pattern of various populations. Research has demonstrated that nutrition play a crucial role in the prevention of disease. The plant selected for the study was Alfalfa seeds which is comes under forage legume, it is also known as the 'father of all plants' and is considered the green food of the millennium.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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