

Garlic as Potential Therapeutic Drug

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Abstract: Dietary factors play very important role in the cure of different human diseases from past many years. Different localities and traditions of dietary patterns is one of the important factor which is directly related to human health. Perceiving the plants as foods and use as medicinal diet was patterned and practiced in many folklore in many tribal cultures. Here this paper is mainly focus in Garlic as medicinal food which is used in many diseases like, diabetics, cardiovascular diseases, Cancer and many more. Allicin (allyl 2-propenethiosulfinate or diallylthiosulfinate) is the principal bioactive compound present in the aqueous extract of garlic or in raw garlic which is considered as the best phytochemical abstract for many medicine. Garlic is well known perceiving plant foods as beneficial diet is advised by the ancestors from of many cultures over centuries. Most of the data in the paper is taken from regular research work and some as review study on Garlic as the best dietary therapeutic drug for many diseases.

Keywords: Allicin, Folklore, Garlic, Bioactive, Therapeutic Drug

1. Introduction

Garlic is an important dietary medicinal food in the history of world. Many of the earliest references of medicinal plants were found in many holy writings (Dannesteter, 2003). Garlic was also used as medicine in India, Asiatic countries and in ancient Egyptians. There are some evidence found that during the earliest Olympics in Greece, garlic was fed to the athletes for increasing stamina (Lawson and Bauer, 1998). Ancient Chinese and Indian medicine recommended garlic to aid respiration and digestion and to treat leprosy and parasitic infestation (Rivlrm, 1998). Avicenna (1988), in his well-known book, Al Qanoon Fil Tib (The Canon of Medicine), recommended garlic as a useful compound in treatment of arthritis, toothache, chronic cough, constipation, parasitic infestation, snake and insect bites, gynecologic diseases, as well as in infectious diseases (as antibiotic). Here in this (review research work) combine work, a survey on current experimental as well as clinical state of knowledge about the effects of garlic in different diseases are given.

2. Materials and Methods

During present study data were arranged by collecting the information about the therapeutically use of Garlic in day to day life. The ethno medicinal information were gathered through interviews and discussion with local informants and non-allopathic practitioners. These data were recorded on the bases of the conservation process of Garlic and its different method for curing the various diseases and infections. Some review data were collected from different research papers, Google survey, different Ayurveda books and some data from research journals related to chemical constituents of Garlic.

3. Results and Discussion

Collected data are segregated number wise for easy understanding. Gathered data are mainly focused on the treatment of cardiovascular diseases, In Cancer and Diabetes mellitus.

1) Botanical details of Garlic:

- a) Botanical Name: *Allium sativum* is a member of the **Lillaceae** family, along with onions, chives, and shallots (Iciek et al., 2009.; Lanzotti, 2006.).
- b) Habitat: Garlic is a bulbous plant; grows up to 1.2 m in height. Garlic is easy to grow and can be grown in mild climates.

2) Biochemical Detail of Garlic:

Biochemistry: during the chopping and crushing the Allinase enzyme is activated and produce Allicin from Aalliin (present in intact garlic). Some more compounds are present in garlic like 1 -propenylallylthiosulfonate, allyl methyl thiosulfonate, (E,Z)-4,5,9-trithiadodeca-1,6,11-triene 9- oxide (ajoene), and γ -L-glutamyl-S-alkyl-L-cysteine. Medicinally used, garlic oil is prepared by steam-distillation process. These oil consists of the diallyl, allylmethyl, and dimethyl mono to hexasulfides (Lawson and Bauer, 1998).

3) Effects of garlic on cardiovascular diseases

Garlic and its preparations have been uses for prevention and treatment of cardiovascular diseases. The scientific literature supports the proposal that garlic consumption have significant effects on lowering blood pressure, reduction of serum cholesterol and triglyceride (Chan et al., 2013). Several clinical studies showed that garlic reduced blood pressure in more than 80% of patients suffering from high blood pressure (Auer et al., 1989; Konig and Scneider, 1986; Petkov, 1979; Omar, 2013; Stabler et al., 2012). Most of human studies on lipid lowering effects of garlic and garlic preparations described significant decrease in serum cholesterol and triglyceride (Gardner et al., 2001; Ziaei et al). It has been suggested that different people might have different responses to garlic, thus garlic may be more beneficial for some specific groups (Zeng et al., 2013).

3.1 Anti-tumour effect of garlic

Many studies have suggested possible cancer-preventive effects of garlic preparations. Garlic has been found to contain a large number of potent bioactive compounds with anticancer properties. The growth rate of cancer cells is reduced by garlic, with cell cycle blockade that occurs in the G2/M phase (Capasso, 2013). In 1990, the U.S. National

Cancer Institute initiated the Designer Food Program to determine which foods played an important role in cancer prevention (Dahanukar and Thatte, 1997). They concluded that garlic may be the most important food having cancer preventive properties. Garlic has a variety of anti-tumor effects, including tumor cell growth. In rodents, garlic and its constituents have been reported to inhibit the development of chemically induced tumors in the liver (Kweon et al., 2003), colon (Knowles and Milner, 2003), prostate (Hsing et al., 2002), bladder (Lau et al., 1986), mammary gland (Amagase and Milner, 1993), esophagus (Wargovich et al., 1988), lung (Sparmins et al., 1986), skin (Nishino et al., 1989), and stomach (Wattenberg et al., 1989) in both rodent and human studies.

3.2 Diabetes mellitus

Many studies showed that garlic can reduce blood glucose level in diabetic animals. Garlic was effective in reduction of blood glucose in streptozotocin- as well as alloxan-induced diabetes mellitus in rats and mice (Sheela et al., 1995; Ohaeri, 2001). Short term benefits of garlic on dyslipidemia in diabetic patients were shown (Ashraf et al., 2005). Garlic significantly reduced serum total cholesterol and LDL cholesterol and moderately raised HDL cholesterol as compared with placebo in diabetic patients (Ashraf et al., 2005). Chronic feeding of garlic extracts showed significant decrease in blood glucose level. However, some other studies showed no change of blood glucose level after that in human. Therefore, the role of garlic in diabetic patients needs to be further investigated (Banejee and Maulik, 2002). The beneficial effect of garlic on diabetes mellitus is mainly attributed to the presence of volatile sulfur compounds, such as alliin, allicin, diallyldisulfide, diallyltrisulfide, diallylsulfide, S-allyl cysteine, ajoene, and allylmercaptan. Garlic extracts have been reported to be effective in reducing insulin resistance (Padiya and Banerjee, 2013).

4. Conclusion

Given data of this research cum review paper may be useful to increase our knowledge of therapeutic effects of Garlic and to improve the future experimental and clinical research in same area. Future trials on the effect of garlic should include information on the dosage of active ingredients of standardized garlic preparations for better comparison of trials. Although garlic is believed to be a safe natural substance without any side effects. The safety of garlic should be tested especially in pregnant or breastfeeding women as well as in young children (Budzynska et al., 2012; Dante et al., 2013).

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