Therapeutic Potential and Phytoconstituents of Allium cepa Linn

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Description

In the present scenario, herbal medicines have gained global importance with both medicinal and economic implications. Widespread use of herbs all over the world has raised serious concerns over their quality, safety, and efficacy. Thus, accurate scientific assessment has become a prerequisite for the acceptance of health claims. Onion (Allium cepa Linn.) is a member of the genus Allium, is the second utmost important horticulture crop all over the world. It is used as an important source of phytoconstituents and food flavor. Onions are the richest sources of flavonoids and organosulphur compounds. They possess a high level of antioxidant activity attributable to flavonoids quercetin, kaempferol, myricetin; pigments such as anthocyanins, and organosulphur compounds. The most important among the sulphur compounds are the cysteine derivatives non-volatile S-amino acids, S-alk(en)yl-substituted cysteine sulphoxides and their decomposition products such as thioulinates and polysulphides. These sulfur compounds and flavonoids possess antioxidant, antiinflammatory properties. The volatile oil of onion has been shown to be highly effective against gram-positive bacteria, dermatophytic fungi, growth, and aflatoxin production of Aspergillus fungi genera including Aspergillus niger, Brettanomyces anomalus, Candida albicans, C. lipolytica, Cladosporium wereckii, Fusarium oxysporium, Geotrichum candidum, and Saccharomyces cerevisiae. Aqueous extract or the juice of onion has been reported to inhibit in vitro growth of Escherichia coli, Serratia marcescens, Streptococcus species, Acetobacillus odontolyticus, Pseudomonas aeruginosa, and Salmonella typhosa. A petroleum ether extract of onion repressed the in vitro growth of Clostridium paraputrificum and Staphylococcus aureus. Welsh onion extracts have been reported to exert more inhibitory activity towards aflatoxin production than the preservatives sorbate and propionate at pH values near 6.5, even at concentrations 3-10 folds higher than the maximum level used in foods. Organosulphur compounds have been reported to be responsible for the antibacterial effects of onion extract against oral pathogenic bacteria causing dental caries. In addition to inhibitory effects against pathogenic bacteria, onions have been found to promote beneficial micro-organisms.

Onions have been shown to acquire antibacterial and antifungal properties. The volatile oil of onion has been shown to be highly effective against gram-positive bacteria, dermatophytic fungi, growth, and aflatoxin production of Aspergillus fungi genera including Aspergillus niger, Brettanomyces anomalus, Candida albicans, C. lipolytica, Cladosporium wereckii, Fusarium oxysporium, Geotrichum candidum, and Saccharomyces cerevisiae. Aqueous extract or the juice of onion has been reported to inhibit in vitro growth of Escherichia coli, Serratia marcescens, Streptococcus species, Acetobacillus odontolyticus, Pseudomonas aeruginosa, and Salmonella typhosa. A petroleum ether extract of onion repressed the in vitro growth of Clostridium paraputrificum and Staphylococcus aureus. Welsh onion extracts have been reported to exert more inhibitory activity towards aflatoxin production than the preservatives sorbate and propionate at pH values near 6.5, even at concentrations 3-10 folds higher than the maximum level used in foods. Organosulphur compounds have been reported to be responsible for the antibacterial effects of onion extract against oral pathogenic bacteria causing dental caries. In addition to inhibitory effects against pathogenic bacteria, onions have been found to promote beneficial micro-organisms.

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