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Sesame lignans: Potent components as nutraceuticals/functional foods

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Oxidative stress is a key component in several chronic degenerative disease including cancer. Sesame has long been known to have both nutritional and medicinal value. However, the scientific basis of the health claims of sesame is not clear yet. The fatty acid composition and the tocopherol levels do not completely explain the high stability of sesame oil and these unusual characteristics are attributed to its non-glyceride components, i.e. the lignans, namely sesamin and sesamolin. Sesamin has been shown to have hypocholesterolemic and immunomodulatory properties while sesamolin is the precursor ofsesamol and sesaminol.

Studies at NIN were focused to evaluate the potency of sesame lignans in biological (invitro and invivo) systems and foods. Sesamin and sesamolin were isolated and crystallized from highlignan cultivars, and their purity was confirmed by spectral analysis.Although lignansper se were weak antioxidants they enhanced the antioxidant activity of vitamin E, sugesting that sesame lignans may have sparing effects on tocopherols. The effects of feeding sesamin and sesamolin on Fe2+-induced oxidative stress in rats showedincreased bioavailability of tocopherols, probably due to regeneration of oxidized tocopherols. Addition of sesame lignans to edible oils resulted in increased thermal stability suggesting that sesame lignans may have potential application as natural antioxidants in the edible oil and food industry; The synergistic effects of lignans with tocols has nutritional and therapeutic implications. Therefore sesame lignans may be considered as active ingredients of nutraceuticals/functional foods.

Biography

Hemalatha Sanagaram was awarded her PhD in the year 2002 from Osmania University, Hyderabad. She has been working in the area of lipid chemistry with specific emphasis on the role of minor components present in the non glyceride fraction of oils in health and disease. She has published papers in peer reviewed International journals.

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