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REVIEW OF Mango (*Mangifera indica* L.) & SEEDS

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1. Review of Mango (*Mangifera indica* L.) & Seeds:

Mangiferin is a well-known polyphenolic compound which has been extensively studied for its numerous biological properties [1].

Among these, polyphenols (flavonoids, xanthones, and phenolic acids) are the most abundant compound types in M. indica [2].

Carotenoids are another class of natural compounds found in plants. They are considered as natural organic pigments [3].

Ascorbic acid and dehydroascorbic acid (oxidized form of ascorbic acid) are two other common polyphenols found in M. indica [4]

A large variety of chemical compounds have been reported in *M. indica* [5].

The amount of polyphenols is high in many parts of M. indica. Thus, a pure compound alone has been proven to be less effective than crude drugs, implying that the synergism of many M. indica polyphenols is essential for optimum biological activities [6].

Islam et al. 2010 showed the antibacterial effects of leaf ethanol extract of a mango variety found in Bangladesh. Growth inhibition of Staphylococcus aureus, Streptococcus

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agalactiae, B. cereus, Bacillus megaterium, B. subtilis, and Lactobacillus bulgaricus bacterial species by methanolic leaf extract was observed in the study [7]

Pitchaon, 2011 has demonstrated antioxidant capacity of seed kernel obtained from a mango variety (Chok-Anan) grown in Thailand. Two kernel extracts have been prepared by acid hydrolysis and shaking in ethanol. The results of this study showed that the extract prepared by acid hydrolysis has a high antioxidant potential than the extract prepared by shaking in ethanol. [8].

Thai mango, Egg mango, Luzon, Narcissus, Big Tainong, Keitt, Australian mango, and Small Tainong) found in China found that the peel of Small Tainong (Xiao Tainong) variety exerts the highest antioxidant potential among the tested varieties. Another study conducted [9].

The results of this study revealed that prepared nanoparticles can effectively inhibit the growth of *E. coli*, *S. aureus*, and *B. subtilis*. A decoction prepared from ripe and unripe mango peel and seeds has been used to study antibacterial effects [10].

India contributes over 52 percent of worldwide mango production (http://www.fao.org/3/ca5692en/ca5692en.pdf), which is the world's largest mango producer [11].

Fruit peel, flesh, seed kernel, leaves, and bark of M. indica have been extensively studied for their antidiabetic properties [12].

Irondi et al., 2016 showed that flour supplement prepared with mango kernel effectively reduced blood glucose level in diabetes rats. Improvement in liver function, blood glucose level, hepatic glycogen, lipid profile, and hepatic and pancreatic malonaldehyde was observed in diabetic rats supplied with flour supplement [13]

Various studies have been conducted with the extracts of roots, leaves, bark, fruit peel and flesh, and kernel of M. indica to investigate antibacterial properties. Among these parts, mango kernel and leaves are the most studied parts for antibacterial effects [14].

The by-products including peel and kernel are generated during mango processing. Protein, starch, and fat are the main constituent of mango seed [15].

The result is from 40% to 85% of the seed. Additionally, the fruit comprises 66.10–72.40% pulp, 9.80%–14.30% peel, and 7.50–9.30% tested [16].

Several antifungal proteinaceous compounds have been produced by LAB namely, bioactive polypeptides, cyclic di-peptides, bacteriocins, and amino acids. These proteinaceous compounds are highly responsible for the antifungal activity of LAB [17].

This study that seed kernel exhibits more phenolic compounds with bioactive properties than edible fraction of mango. The influence of factors such as cultivar and maturation degree on the phenolic composition has been studied to evaluate nutraceutical value [18].

B S Sipra et.al. 2023, the study of moisture content, yield percentage, organoleptic properties, and phytochemical and biochemical estimation of two varieties of mango seed kernel using different solvents with various polarity such as n-hexane, chloroform, ethyl acetate, acetone, methanol, and aqueous [19]

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