Medicinal Properties of Ocimum basilicum and Azadirachta indica

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In the past, Ocimum basilicum (Basil) and Azadirachta indica (Neem) have been considered medicinal plants. With the need for new antibiotics and bacteria constantly evolving and resistant, Basil and Neem were tested for possible medicinal properties. To test for antimicrobial properties, the leaves of each were soaked separately in a 50% methanol solution for 48 hours. Extracts were filtered and methanol was removed using a rotary evaporator. Basil and Neem extracts were separated into four extracts (water, petroleum ether, dichloromethane, and ethyl acetate) using a series of liquid-liquid extractions. Extracts were used to treat intestinal Escherichia coli, Bacillus subtilis, and Escherichia coli K12 by impregnated disc method. Zones of inhibition were recorded. T-tests were performed against pure solvents (p-values < 0.05 were significant). Extracts exhibiting antimicrobial properties were separated into fractions using Thin Layer Chromatography. Fractions were scraped off the TLC plates, filtered, and separated by a GC-MS to isolate and identify individual compounds. Very few extracts had a negative effect on the intestinal E. coli; this is a positive aspect since it is beneficial to the gastro-intestinal process. P.E. (aq) Neem extract showed the highest antimicrobial activity and attributed to 4-(Methylthio)Benzonitrile. Other antimicrobial activity: P.E. (extract) Basil (9-octadecenoic acid) Synthesized only P.E. (extract) Basil (1-Tridecyne) Synthesized only P.E. (aqueous) Neem (4-(Methylthio)Benzonitrile) Occur naturally in Pinata Seed Oil These discoveries can be advantageous to replace existing antibiotics that are becoming resistant to particular strains of bacteria.

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