

PLENARY PRESENTATIONS

EFFECTS OF ESSENTIAL OILS AND HYDROSOLS ON THE GASTRO INTESTINAL SYSTEM

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Current research focuses on gut microbiota, immune system interactions, and personalized treatment strategies, and advances which are expected to significantly improve diagnostic and treatment processes. The use of aromatic plants and their essential oils for therapeutic purposes is one of the oldest approaches and has developed independently in different cultures. Numerous studies were reported on their antimicrobial, antifungal, antioxidant, anti-inflammatory, antispasmodic, etc., effects, and their effectiveness are well known. In fact, the internal use of essential oils may have significant toxicological risks due to their high concentration of lipophilic compounds. Oral ingestion can lead to irritant and hepatotoxic effects, particularly on the liver and gastrointestinal system. Dose control is difficult due to their narrow therapeutic range and variable bioavailability among individuals, increasing the risk of acute toxicity. Furthermore, some components can cause neurotoxic effects on the central nervous system and lead to drug interactions via hepatic enzyme systems. Mucosal irritation, gastrointestinal disturbances, and allergic reactions are also frequently reported adverse effects. For these reasons, oral use of essential oils is not safe; it is generally not recommended except under clinical supervision. Hydrosols or aromatic waters are obtained during distillation or prepared from essential oils. They are water-soluble compounds with relatively low concentrations of volatiles such as terpenes and aromatics. Therefore, they have a lower irritant potential. After microbial evaluation, and with minimized risk of contamination, hydrosols can be consumed orally as beverages or aromatic supplement according to traditional documentation.

In this presentation, the hydrosol preparations of *Citrus aurantium* L. (neroli), *Coriandrum sativum* L. (coriander), *Elettaria cardamomum* (L.) Maton (cardamom), *Mentha spicata* L. (spearmint), and *Zingiber officinale* Roscoe (ginger) herbal drugs, which are commonly used to treat digestive system disorders will be elaborated.

Keywords: Gastro intestinal microbial diseases, essential oils, hydrosols, infusions, combinations.

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