

Clinical Studies

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Plants produce primary and secondary metabolites which have been exploited by humans for many different beneficial purposes. Many secondary plant metabolites, e.g. terpenes, terpenoids, alkaloids and phenolic compounds have been well characterized. Essential oils are considered the chemical weapons of plants, as their compounds may deter insects or protect plants against bacterial and fungal infections. They also act as plant pheromones to attract insects. In traditional medicine, lots of plant products have been widely used for the treatment of neurologic diseases, cancer, inflammation and infectious diseases and plants represent an abundant source of new bioactive secondary metabolites.

According to the Communicable Diseases Centre in the US, about one third of prescribed antibiotics were inappropriate thus stating an overuse and misuse of antibiotics. Essential oils are also highly active against multi-resistant *Staphylococcus aureus* (MRSA), one of the so-called hospital super bugs, as well as more common and well-known infections like herpes labialis. In addition to antibacterial and antiviral effects, essential oils have been shown to possess many useful pharmacological properties, often being more effective than conventional drugs and revealing fewer side effects. Although the number of published papers on anti-infective properties of medicinal plants is increasing during the last years, most of these papers seem to

somehow disappear and do not attract physicians and pharmacologists. On the other side, there is often lack of finance to continue research to the clinical trial level. This area is usually largely dominated by pharmaceutical companies who can afford costly clinical trials. It also seems that natural and complementary therapies are pushed aside by pharmaceutical companies. Although there is no shortage on research about anti-microbial effects of medicinal and aromatic plants, it is somehow ignored in industrialised countries. Prescribed drugs are more convenient for patients and physicians, although natural products might offer an alternative in treatment of many different diseases. In resource limited countries, conventional medications are often not affordable or not available and consequently natural products are the medication of choice.

Our goal is to provide scientific results that can be reproduced by others, thus standardised plant products are required. If more standardised and only high quality natural products are used in basic research as well as in clinical trials, the critics might be convinced and acceptance of medicinal plant products might be increased. Investigators are also encouraged to explore the potential of phytopreparations in combination with synthetic drugs in order to enhance pharmacological actions. High quality plant products and more clinical trials are urgently needed to establish rational phytotherapy.

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