

Using Essential Oils in Agriculture : Crop Protection and Animal Farming

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In the past two decades, researchers have intensively focused their efforts on the development of alternatives to antibiotics as growth promoters in animal farming. Among these alternatives, essential oils were the first substances of natural origin to be tested. Pigs and poultry are the more frequently concerned species in the literature. If antibiotic activity of essential oils was the initial interest of their uses, other properties are now studied: immunomodulation, lipidic metabolism, growth performances and feed conversion ratio or meat oxidative status. If their mechanisms of action are still unclear, some evidences of their influence on animal metabolism are published. The most popular essential oils used in feeds are the ones containing phenols (thymol, carvacrol, eugenol) or cinnamaldehyde.

Beside incorporation of essential oils in feed, their therapeutic use becomes more and more popular. Different essential oils have been recommended for treating dairy cows mastitis or to reduce stress in horses and pets.

The development of organic farming as well as resistance to conventional pesticides have led to the search for natural pesticides. Many essential oil have been tested for their pesticide activities on insects, including larvicidal, antifeedant, repellent properties. Other uses of EO in crop protection are herbicide, fungicide, sprout inhibitors and sometimes as adjuvants.

Examples of these agricultural uses of essential oils will be presented discussed.

Finally, it is pointed out that the very critical point concerning the use of essential oils in agriculture is the regulatory status of these natural products.