

Eugenol supplementation as an additive to improve the thermal stability of *Hedychium coronarium* Koenig essential oil

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Background: Eugenol is a phenolic compound with a wide spectrum of biological activities such as antibacterial and antioxidant. **Objective:** Eugenol is an ideal candidate as a natural antioxidant additive, especially for those substances that are affected by lipoperoxidation process, this is the case of essential oils that have an important role in the food, perfumery and pharmaceutical industries, which easily deteriorate under high temperature, strong light, and reactive oxygen species. **Methods:** In order to evidence the influence of the addition of eugenol in the thermal properties of *Hedychium coronarium* Koenig essential oil, were determined the chemical composition, antioxidant properties and TG/DTG analysis after the supplementation with different ratios of eugenol/essential oil. **Results:** The results showed a high content of oxygenated monoterpenes (50.33%), followed by monoterpene hydrocarbons (23.35%) and sesquiterpene (19.2%), the TG/DTG analysis presented a significant increment in the degradation temperature of the essential oil, being the major value 12 °C at a supplementation of 4.7% (v/v) of eugenol.

Conclusion: Finally, the supplementation with eugenol improved the thermal stability of the essential oil of *Hedychium coronarium* Koenig, which could be applicable to other oils thereby improving their physicochemical properties. © 2020 Bentham Science Publishers.

Biological activity

Chemical composition

Essential oils

Eugenol

Natural additives

Thermal stability

ascorbic acid

beta farnesene

beta pinene

carveol

caryophyllene

cineole

essential oil

eugenol

Hedychium coronarium essential oil

humulene

hydrocarbon

linalool

monoterpene

myrtenol

perilyl alcohol

pinene

pinocarvone

sesquiterpene

terpinene

terpineol

unclassified drug

antioxidant activity

Article

biochemical composition

biodegradation

controlled study

Hedychium coronarium

medicinal plant

phytochemistry

priority journal

temperature

thermogravimetry

thermostability

Zingiberaceae