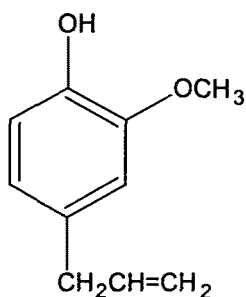


4-6. Acaricidal Activity of Phenylpropenes Identified in Essential Oil from *Eugenia caryophyllata* against *Dermatophagoides farinae* and *Dermatophagoides pteronyssinus* (Acari: Pyroglyphidae)

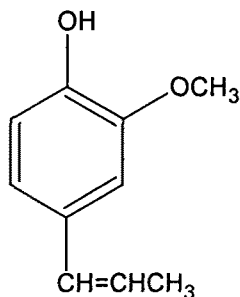
Eun Hee Kim, Hyun Kyung Kim and Young Joon Ahn

School of Agricultural Biotechnology, Seoul National University, Suwon, Korea

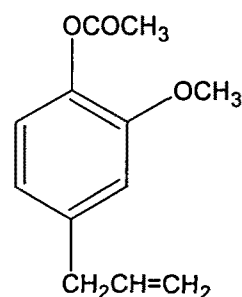
The acaricidal activity of materials derived from the essential oil of *Eugenia caryophyllata* against *Dermatophagoides farinae* (Hughes) and *Dermatophagoides pteronyssinus* (Trouessart) was examined using direct contact application and fumigation methods and compared with that of the widely used DEET and benzyl benzoate. The biologically active constituents of the essential oil were characterized as the phenylpropenes eugenol and isoeugenol by spectroscopic analysis. Responses varied with compound, dose, and mite species. In a fabric test, at a concentration of $6.4 \mu\text{g}/\text{cm}^2$, eugenol and isoeugenol gave $>90\%$ mortality against *D. pteronyssinus* adults, whereas 53% mortality was observed with acetyleneugenol. Against *D. farinae*, at $12.7 \mu\text{g}/\text{cm}^2$, $>90\%$ mortality was observed with eugenol and isoeugenol, whereas acetyleneugenol caused 37% mortality. Acaricidal activity against both mite species was much more pronounced in eugenol and isoeugenol than in DEET and benzyl benzoate. In a fumigation test, eugenol and isoeugenol were much more effective against both mite species in closed containers than in open ones, indicating that the acaricidal activity of the compounds was largely attributable to fumigant action. These naturally occurring *Eugenia* oil-derived compounds merit further study as potential dust mite-control agents or as lead compounds.



Eugenol



Isoeugenol



Acetyleneugenol