

Ovicidal and Adulticidal Activities of *Cinnamomum zeylanicum* Bark Essential Oil Compounds against *Pediculus humanus capitis* (Anoplura: Pediculidae)

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The toxic effects of eight *Cinnamomum zeylanicum* bark essential oil compounds and 17 related compounds on eggs and adult females of *Pediculus humanus capitis* were examined using direct contact and fumigation bioassays and compared with the lethal activity of α -phenothrin and pyrethrum, two widely used pediculicides. On the basis of 24 h-LT₅₀ values at 0.25 mg cm⁻², benzaldehyde and salicylaldehyde were 28- and 25-fold, and 9- and 8-fold more toxic than either α -phenothrin or pyrethrum, respectively. 1,8-Cineole and linalool were slightly more toxic than α -phenothrin and pyrethrum. The pediculicidal activity of eugenol, α -pinene, α -pinene, and α -terpineol was comparable to that of α -phenothrin and pyrethrum. The other 10 test compounds were less active than α -phenothrin and pyrethrum. After 24 h of exposure, no eclosion was observed with 0.063 mg cm⁻² salicylaldehyde, 0.125 mg cm⁻² benzaldehyde, 1.0 mg cm⁻² cinnamaldehyde, and 1.0 mg cm⁻² methyl cinnamate. Neither α -phenothrin nor pyrethrum exhibited ovicidal activity. In fumigation tests with female lice, benzaldehyde and salicylaldehyde were much more effective in closed containers than in open ones, indicating that the mode of delivery of these compounds was largely due to action in the vapor phase. Neither α -phenothrin nor pyrethrum exhibited fumigant toxicity. Cinnamon essential oil, benzaldehyde, 1,8-cineole, cinnamaldehyde, and salicylaldehyde, merit further study as potential pediculicides or ovicides for the control of *P. h. capitis*.