

Pesticidal properties of some invasive plants

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Synthetic pesticides can cause environmental and health problems and invasive plants cause considerable damage to ecological balance. The replacement of synthetic pesticides by phytochemicals of invasive plants would resolve the problems of synthetic chemicals and the unregulated spreading of invasive plants. Crude extracts, prepared from seven common invasive plants, were examined for insecticidal activity against diamondback moth (DBM) larvae and antifungal activity against four pathogenic fungi. Different parts of *Ageratina riparia* (Asteraceae), *Aristea ecklonii* (Iridaceae), *Cestrum aurantiacum* (Solanaceae), *Dillenia suffruticosa* (Dilleniaceae), *Miconia calvenscens* (Melastomataceae), *Mimosa pigra* (Asteraceae) and *Ulex europaeus* (Fabaceae) were collected from the Central Province in Sri Lanka. Each plant part was cleaned, dried, powdered, and extracted sequentially into *n*-hexane, dichloromethane and methanol in an ultrasonicator at room temperature for 30 min. Circular (4-cm) cabbage leaf discs were dipped briefly in an emulsion of each concentrated extract (4 mg/ml) and air-dried. Each extract-coated disc was then exposed to second instar larvae (10) of DBM; the treatment was in triplicate and arranged in completely random design. Mortality counts were taken at 24 h and 48 h after introduction (HAI) of insects. Antifungal activity of the extracts was evaluated against *Cladosporium cladosporioides*, *Colletotrichum musae*, *Aspergillus niger* and *Lasiodiplodia theobromae* by disc diffusion assay (6-mm disc, 2 mg/disc). The *A. riparia* leaf extracts produced maximum mortality (100%) of DBM larvae at 24 HAI; other extracts caused only low mortality (< 40%). The *A. riparia* leaf extracts also inhibited all fungi except *L. theobromae*. The *A. ecklonii* root extracts inhibited all four fungi. The extracts of *M. pigra* (all parts) and *M. calvenscens* (root bark) inhibited *L. theobromae* and *C. musae*. In conclusion, the insecticidal and antifungal extracts of *A. riparia* and the antifungal extracts of *A. ecklonii*, *M. calvenscens* and *M. pigra* are potential sources for developing plant-based pesticides.

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