
A trial for making database for allelopathic activities by Specific Bioassays: Sandwich Method, Plant Box Method, Dish-Pack Method

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Abstract

Tentative database for allelopathic activities by specific bioassays named sandwich method (for leaf leachates), plant box method (for root exudates), dish pack method (for volatile chemicals) was made from the data accumulated for about 20 years. Resulting from the sandwich method, about 6,000 species were tested and the results obtained using 10 mg of leaves in 10 mL per 10 cm² dish followed normal distribution. *Sorghum* sp., *Oxalis* sp. and *Withania* sp. showed strong inhibitory activities. By the plant box method about, 2,000 species were assayed. *Mucuna pruriens* (velvet bean) and hairy vetch (*Vicia villosa*) showed strong activity by this method. The results by dish pack method have a little correlation with the data from sandwich method and plant box method. Based on this database, it was found that endangered plants, slow growing plants, unique plants with few relatives in a given plant family, are allelopathic. As a result of these bioassays, potentially dangerous invasive alien plants with high allelopathic activities were found to be: *Coccinia grandis*, *Rottboellia cochinchinensis*, *Phalaris brachystachys*, *Physalis angulata*, *Gypsophila paniculata*, *Trifolium incarnatum*, *Ipomopsis rubra*, *Silene armeria*, *Anisantha madritensis*. The reasons behind each allelopathic activity and the potential allelochemicals will be discussed.

Keywords: Invasive Alien Plants, Sandwich Method, Plant Box Method, Dish, pack Method, Biodiversity

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