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**Title: A comparative study of the invasive alien plants between the Pacific and Indian Ocean tropical islands**

**Abstract:**

Tropical islands, even geographically distant, are remarkably similar in terms of climatic and topographic conditions, vegetation types, forest structure, physiognomy and dynamics. Island floras are also characterized by a high number of invasive plant species, and subject to an increasing rate of alien species introductions, thus increasing the risk of invasion. Prevention and exclusion of new plant invaders, and early detection and eradication of established species which have not show an explosive expansion (in a "lag phase") are considered as crucial management priorities. However, it is often difficult to predict which species will invade. Two methods to predict new or potential invasive plants are classically used: risk assessment protocols (or "screening systems") based on the evaluation of biological characters that promote invasiveness; and compilation of comprehensive lists of species known to be aggressive elsewhere based on previously documented invasion in similar ecological conditions (their "historical performance").

We conducted a comparative study on the major invasive alien plants between selected tropical islands of the Pacific Ocean (Cook Is., Fiji, French Polynesia, Galápagos, and Hawai'i') and the Indian Ocean (Mauritius, La Réunion, Mayotte and the Seychelles). A list of 110 aggressive species in natural habitats was set up, based on recent personal field-surveys and observations, and on extensive literature.

Among these invasive plants, four broad categories can be recognized: (1) species which are common to both Oceans (e.g. Lantana camara, Leucaena leucocephala); (2) related species which are invasive in both Oceans (belonging to the same genus e.g. Rubus, Hedychium, or to the same family, e.g. Melastomataceae); (3) species which are highly invasive in one or several islands, and whose introduction should be rigorously forbidden in other islands where they are not present (e.g. Miconia calvescens); (4) species which are dominant invaders in one or several islands, and present or naturalized in other islands, but not invasive yet, and whose eradication should be urgently recommended (e.g. Passiflora mollissima).

Whereas considered sometimes as an intuitive (or "tautological") approach largely based on the "precautionary principle", the development of relevant data-bases of invasive alien plants in tropical islands worldwide can allow a simple assessment of species invasiveness, and help to make rapid decisions (e.g. rejection of imports, and prioritisation of control).