

From the West to the far East: bio-cultural affinities and dissimilarities of the floras of some Polynesian islands (South Pacific Ocean)

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Although Polynesians share the same origin, culture and language [1], the tropical and subtropical oceanic islands they inhabit within the “Polynesian Triangle” in the Pacific Ocean (excluding the large continental and temperate island of Aotearoa or New Zealand) have distinctive native vascular floras. They have been separated into four different phytogeographic subregions (or subprovinces), namely Southwestern, Southeastern (including Rapa Nui or “Easter Island”), and Northern (the Hawaiian Islands) Polynesia [2][3]. Their floras show common and dominant Indo-Malayan affinities but with sometimes strong representation of American (e.g. in Hawaii and Rapa Nui) or New-Zealand (e.g. in the Cook and the Austral Islands) floristic components [4]. Their strong similarities are mainly based on the presence of the same pantropical or pan-Pacific coastal plant species (e.g. on the atolls, sandy islets or “motus” and seashores), and by the plant species introduced by the first Polynesian voyagers (“canoe plants”), several hundred to thousands years ago, most of them with multiple uses (e.g. for food, construction, fibers, dyes, medicinal, ritual, ornamental, cosmetic...) and important cultural values [5][6]. We illustrate the high bio-cultural plant diversity in the Polynesian islands through the studied examples of Wallis et Futuna in the West [7], the archipelagoes of French Polynesia (Austral, Gambier, Marquesas, Society and Tuamotu) in the East, characterized by the absence of many plant taxa (“taxonomic disharmony”) due to their lack of long-distance dispersal capacities and a higher endemism, and Rapa Nui in the far East, with a particularly species-poor native and Polynesian flora but surviving traditional uses.

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