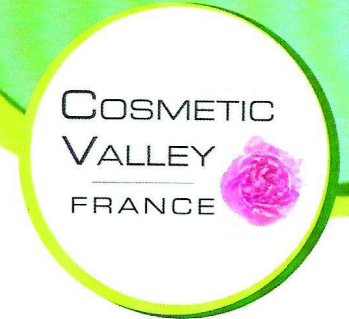


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International Pacific Cosmetopoeia Conference

22, 23 and 24 November 2016,
Punaauia Catering and Hospitality College, Tahiti

Conference Proceeding 2016 edition

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Plants and Polynesians: the challenges of conservation, valuation, sustainable and equitable use of phyto-diversity in French Polynesia

Jean-Yves MEYER^{1,*}

[1] Délégation à la Recherche, B.P. 20981, 98713 Papeete, Tahiti, French Polynesia.

*Corresponding author email: jean-yves.meyer@recherche.gov.pf

With about 880 native plants including more than 540 endemic taxa (62% endemism) [1], French Polynesia has one of the richest vascular flora of the South Pacific islands. Two-thirds of the endemic flora is now considered threatened from anthropogenic impacts [2]. This unique flora is supplemented by some thirty species intentionally introduced by the first Polynesian migrants [3] about 1,000 years ago for various uses (mainly as food, medicine, textile, dyes, and ritual plants), and who have selected and named more than 430 local varieties and cultivars [4,5,6,7]. A small number of species with fragrant flowers, leaves or wood were used for cosmetic or aromatic purposes, such as *Gardenia taitensis* (Rubiaceae) macerated in coconut oil (called “mono’i”) or *Ocimum basilicum* (Lamiaceae) in garlands, but also some common native trees including *Pandanus tectorius* (Pandanaceae), *Premna serratifolia* (Verbenaceae), *Thespesia populnea* (Malvaceae), the shrub *Alyxia stellata* (Apocynaceae) or the fern *Microsorium grossum* (Polypodiaceae), and very rare endemic plants such as the sandalwood *Santalum insulare* (Santalaceae), the small trees *Fitchia nutans* and *F. tahitensis* (Asteraceae) and *Polyscias tahitensis* (Araliaceae), or the fern *Thelypteris grantii* (Thelypteridaceae) [5,8]. The conservation, economic valuation, and sustainable and equitable use of this “ethno-phyto-diversity” as a French Polynesian natural and cultural resource, is constrained by geographical factors (strong isolation of the 120 islands dispersed on an ocean surface as wide as Europe), topographic factors (very small land surfaces, many areas difficult to access on high volcanic islands), soil types and fertility (e.g. poor coralline substrates on atolls), harsh climatic conditions (dry and wet seasons with extreme events such as cyclones and floods), as well as ecological (drastic erosion of the terrestrial biodiversity in the past centuries) and societal (loss of local and traditional ecological knowledge and skills, land property rights, demographic pressure and growing urbanization) issues. One of French Polynesia’s main challenges is thus to reconcile the protection of its phyto-diversity and associated traditional ecological knowledge and practices (in accordance with international and French Polynesian legislations, including intellectual property and access and benefit sharing rights) with socio-economic development, and by integrating ancient traditional and modern scientific expertise (especially technological innovation) in a globalised and rapidly changing world.

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