

Marie Curie Initial Training Network (ITN) “MedPlant”

MedPlant is a Marie Curie Initial Training Network (ITN) supporting a new generation of science researchers in biodiversity driven drug lead discovery. The network will be running for four years from October 2013 to 2017, and will enable 13 PhD and 2 postdoctoral researchers to work collaboratively across disciplines to develop new approaches and technologies for selection and sustainable use of biodiversity resources for lead discovery and to develop new plant derived leads. For more details see: www.MedPlant.eu.

The number of new drugs coming to the market is declining and interest in lead discovery from natural resources is seeing a revival. However, although methods for isolation and identification of natural products have advanced explosively in recent decades, methods for selection of potential leads have hardly developed. Hence, training of a new generation of researchers in the proposed innovative field of biodiversity driven lead discovery is both timely and relevant, as it will contribute directly to the economic development and future welfare of Europe and will significantly enhance the employment prospects of the participants.

The available positions at the University of Cagliari are:

ESR7 Project

The Chimalapa Zoque live on the edge of the “Selva Zoque”, the largest tract of tropical rainforest in Mexico. While the medical ethnobotany of the closely related cultural groups such as the Sierra Popoluca and the Mixe has been documented extensively, no such studies are known for the Zoque. All three cultural groups once formed a solid geographical block across the states of Veracruz, Tabasco, Oaxaca and Chiapas and are believed to be descendents of the ancient Olmecs. Information on the medical practices of early Colonial and pre-Columbian Mesoamerican cultures are generally scarce. The project attempts to gain insights into pre-Colonial medical practices in the tropical lowlands of Mexico through a cross-cultural comparison and consensus analysis of the Zoque ethnopharmacopoeia with that of related Macro-Mayan groups. The objective of this PhD project is to quantitatively record the contemporary ethnopharmacopoeia of the Zoque through an ethnobotanical and ethnopharmacological field-study. The PhD will prepare herbarium specimens of the medicinal taxa surveyed and identify the species at the National Herbarium of Mexico (MEXU).

ESR8 Project:

Ancient knowledge on medical plant use has been passed down orally and through the copying and divulgence of written documents. Analyses of modern pharmacopoeias clearly show that the selection of medicinal plants is not random with respect to their taxonomic affiliation. Besides the therapeutical effectiveness, human cognition also perceives organoleptic properties of plant species as important selection criteria. There is a broad spectrum of different uses for individual medicinal plants reported in the literature and applied in herbal medicine. Together with the often ambiguous pharmacological results, the divers indications accepted in herbal medicine present a problem for producers of phytopharmaceutical products. Although multiple uses may have a pharmacologic base, they hamper a clear therapeutical indication as well as the engineering of standardized extracts. In this project quantitative data of medical plant use reported in ancient herbals will be evaluated with respect to the phylogenetic relatedness and the organoleptic properties of these herbal products. Objectives: The PhD student will identify and analyse the plant taxa described in classic herbals with respect to the reported indications, applications and organoleptic properties. With the identified species, the researcher will construct a phylogenetic tree based on molecular markers.

Organoleptic properties, including taste and smell, will be assessed experimentally with the help of human volunteers. The candidate will combine the results of molecular systematics with the uses described in the classical herbal texts together with the corresponding organoleptic properties in a statistical consensus and variation analysis.