

**The Master course on ETHNOBIOPHARMACY and NATURAL BIODIVERSITY PRODUCTS** is aimed at promoting the sustainable use of the natural resources derived from biodiversity, including those used in the traditional medicines of Developing Countries (DCs). The course will focus on the isolation, study, and analysis of natural compounds, as well as on the production and marketing of derived products, for pharmaceutical, phytotherapeutic, cosmetic, nutritional, phytosanitary, and other uses. While traditional medicines are very important in economically disadvantaged countries, studies on natural products also impact on medical practices in developed countries. New active ingredients, including those potentially derived from natural sources still under-studied, such as those connected with the ancestral experiences of traditional medicines (ethnopharmacology) are required to cope with severe endemic diseases in DCs, such as malaria or dysentery, as well as to control chronic diseases typical of societies characterized by a high incidence of elderly people, like the western ones. On the other hand, the therapeutic efficacy and the safe use (non-toxicity) of phytotherapeutic products must be scientifically demonstrated, as by-now provided for by strict rules of the European and American regulating Agencies. Moreover, also important and more and more widespread is the use of natural products, also in sectors other than the pharmaceutical one, such as the ones mentioned above. The new professional figure that the course is intended to create via a multi-disciplinary approach that provides for technical-scientific, as well as humanistic subjects, such as anthropology and ethnomedicine, and legislative, marketing, and development economy notions, shall: a) be familiar with the chemistry, biology, and pharmacology of the main biologically active natural compounds and of products derived therefrom; b) be able to isolate, chemically characterize, and test natural products for biologic activity; c) know the rules on the use and marketing of natural products for the different applications; d) be able to use natural products as significant income and socioeconomic development factors both in countries characterized by biodiversity – usually DCs – and in industrialized countries, the main users of biodiversity products; e) be able to analyze news on natural and traditional therapies with scientific rigour, in consideration both of the chemical-pharmacological properties and of the historical and social conditions in which such know how has developed; f) be able to develop the appropriate scientific cross-disciplinary studies and research in full respect of the rights of the Countries that own biodiversity, to define their chemical, biological, and pharmacological properties and their possible applications; g) know, protect, and valorize cultural traditions in the field of healthcare in often millennia-old civilizations.

One important and unique peculiarity of this Master course is the focus on the fair relation that needs to be in place between DCs and industrialized countries, which has been so far usually characterized by severe imbalance in favour of the latter. While, in fact, the former, are rich of natural resources, they were often deprived of this wealth by the industrialized countries without any benefits, either in economic terms or in terms of progress of scientific or technological know how.

The professional figures developed by the Master course will use their cultural, scientific, and humanistic \* to cooperate with producers in DCs by transferring modern technologies and scientific know how to them to develop production processes for local and international markets, in synergy with research institutions and companies interested in natural products.

#### Professional opportunities

The professional figure created by the Master course can find professional opportunities in:

- producer companies interested in the national and international market of pharmaceutical, parapharmaceutica, cosmetic, food, aroma and fragrance products, nutraceuticals and food supplements, phytodrugs, and biotechnological processes;
- trade activities (herbalist's shops, parapharmacies, pharmacies, etc.) dealing with products that contain natural active ingredients;
- procurement of vegetable raw materials from DCs;
- cooperation with NGOs or national/ international institutions involved in cooperation or in the socioeconomic development of DCs and in the protection of biodiversity;

- cooperation with Universities and research institutions that carry out studies on natural products;
- other sectors and activities requiring chemical-biological-pharmacological knowledge of natural products, alongside notions of ethnomedicine, ethnopharmacology, and socioeconomics.