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Medicinal Plants. What's in this Name? (**)

The isolation of the first active principles from medicinal plants pointed out the first discrimination between the empiric use, related to the holistic idea of vegetal drugs, and the scientific one based on updated criteria. After 170 years it can be claimed that medicinal plants haven't as a sole destiny the isolation of active principles, but, on the other hand, it is unsuitable to re-propose their empirical use for therapeutic purposes claiming to fill the gap of modern medicine or almost as an alternative to it.

Some medicinal plants are utilized today for the isolation of important active principles (in competition with the total chemical synthesis) and these chemicals have the honour of the monographs in modern pharmacopoeias.

Other plants are used for the isolation of accumulation compounds or key products of biosynthesis which can be advanced steps in the synthesis of complex polichiral and polycyclic molecules of pharmaceutical interest.

Moreover, other vegetal drugs, on account of their therapeutic value of efficacy and safety, are, as such, granted the honour to accede to modern pharmacopoeias with a defined content of active principles (one or more, if everyone concurs in the same therapeutic aim) detectable by standard analytical methods. The pharmacopoeia monographs for these drugs also report the macro and microscopic description for their botanical identification, the limits for extraneous organs and elements. These data of botanical and qualitative and quantitative chemical identification as well as the biological data of efficacy and safety, the knowledge of side effects, the pharmacotoxicological standardization and the stability warrant for the formulations, are necessary for the registration of plant-based proprietary medicinal products and for plant-based official galenicals.

However, only a few are the known plants which have scientifically sound data for chemical and pharmacotoxicological standardization to guarantee quality,

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safety and efficacy in their formulations. Only fragmentary data of separate researchers are available since the pharmaceutical industry is not interested in this area where it cannot protect the findings.

Many plants have value only for traditional use, and for them it is laborious and difficult to get the aforementioned information, to relate the activity to something chemically definite, i.e., the active principles, the ignorance of which hampers their assured presence in the derivatives. In other words, the use of herbal drugs in primary health care with the same standard of quality, efficacy and safety as for other pharmaceutical products (also required by the WHO's regional agencies for traditional medicine) is yet feasible for only a few of them, and this can be claimed in sharp disagreement with what is stated in the resolution proposal of the European Parliament (Doc. B2-741/83) drawn up by the Commission for Environment Protection, Public Health and Consumer Defense in the EEC. However, such proposal, submitted to the attention of the Commission for Energy, Research and Technology, has been judged not very sensible and anyway untimely.

Then let us consider the first requirement, that of safety, indispensable for the food use of a vegetal source, usually checked eventually by public institutions or appointed bodies. Many are the so-called medicinal plants which are utilized in food context and at any rate the food-drug discrimination does not fall within the frame of traditional medicine, as also Paracelsus wanted to theorize. Toxic agents naturally occur in foods, as the title of a famous text published by the U.S. National Academy of Sciences in 1966 stated, and as has been shown in acute administration for some plants. Thus there are plants which can deserve the qualification of safety (GRAS - generally recognized as safe), whereas for some of the over 300 seasonings of the Council of Europe a threshold limit has been established for the toxic ingredients, such as β -asarone, α - and β -thujones, santonin, hypericin, safole, hydrocyanic compounds, quassin. Many other plants, or better herbal drugs, have the informal status of safety in the scientific community, at least till they are declared dangerous eventually, as has happened for *Aristolochia clematitis*, *Symphytum officinale*, *Phytolacca americana*, *Tussilago farfara*.

Of course, if the food use has the prerequisite of harmlessness, the medicinal use should have the requisite of efficacy. Well, for most plants of different traditions only indications of old literature are available and they are not in agreement with updated rules of pathology, physiology and therapy. However, the mention of these indications on the preparation labels is not allowed by law in Italy and, for instance, in the U.S. as well. By legislation these products on the market cannot be put together with dietetics, determined by the EEC as nourishment for particular health conditions. For the latter the ingredients list as well as the composition of food principles must be reported on the label.

In the recent past, for these herbal preparations, unacceptable under the EEC directives on medicinal products, the possibility of a special registration with general indications for minor diseases or symptomatic relief had been envisaged. This point of view has been recently shared by the Ministry of Social

Affairs and Family of France, which has instructed the manufacturers for the preparation of herbal products (about 150 herbal drugs) with the observation of good manufacturing practices, to be sold in pharmacies, with detailed indications (different for consumers and for doctors) always referring to traditional use. The same trend for these products called "*Folklore medicines*" is emerging in Canada. They would have a guarantee of safety and efficiency even though not proven by standardized methods as for other medicinal products.

Thus, between the "drug use" and the "food use" the "traditional drug use" should be set up: it should be partially assimilable to the "over the counter" (OTC) products. Such proposals are related to the peculiar marketing condition in France, where this sale is actually permitted to pharmacies only. However, in French pharmacies herbal mixtures and their derivatives are on display, labeled, or even named with indications which fortunately have been eliminated by suitable repressive action in Italy.

In Italy, and also in the U.S., as aforementioned, no reference to the activity can be added to these preparations (often mixtures illogically assembled, reserved to self-medication and to the private health sector) which the consumer holds but has no memory or written indication of their function. Some manufacturers, thus not being permitted to mention the product's activity, resort to the "absence of pesticides" or some other claim to quality.

Finally the "herbalist" problem, i.e., marketing outside the pharmacy, is a further element to be considered. This is also referred to in the aforementioned resolution of the European Parliament, which however does not treat the following questions:

- i) Should the ethical herbal drugs be sold in herbal shops (not only in pharmacies) or only if hypodosed, with threshold limit to be established and enforced (and this is very difficult)?
- ii) Should plants of some relevant activity be sold without any reference to their standardization and without any guidance regarding combinations?
- iii) Should plants of restricted use, not mentioned in pharmacognosy textbooks, be sold?

In spite of these dilemmas and inconsistencies, the empirical use of so-called medicinal plants is now being repropounded without consideration of the active principles which, even if their isolation is not required, have sooner or later qualified the true medicinal plants.