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## **LETTER TO THE EDITOR**

### **Medicinal plants and its extracts: the necessity of continuous studies**

Since the ancient times, the humankind makes use of entire plants or its extracts as alimentary source, cosmetic material or to fight diseases. The possibility of its use was initially discovered by observing the animal behavior or simply by chance. But with the improvement of Science and technology, plants never before explored are currently characterized and valued for its properties, increasing considerably the development of natural products.

Despite its many applicability, the biggest consumer of plants and herbs is the phytotherapeutic, which generates about 50 billion dollars annually. According to the World Health Organization, approximately 80% of the population worldwide consumes remedies of natural origin. Therefore, health authorities have increased the attention toward the use of medicinal plants because often times they are the only medicine available in deprived regions and/or less developed areas or because they are an alternative medicine in more developed areas.

Phytotherapeutics are substances derived from plants recognized for its effectiveness and that have been used for thousand of years in the treatment of determined pathologies. Natural remedies are substances removed in their raw stages from nature and used as medicine nearly without any purification. Although they are almost synonymous, the first ones are products that actions have already been proven scientifically, while the understanding of the medicines' properties of the second comes from popular wisdom transmitted from generation to generation.

Around the world, many plants are used to treat a variety of diseases. It is estimated that the number of superior plant species catalogued is approximately 365,000, and about 8% of them have been systematically studied in bioactive composite terms. Even though this is a low percentage, approximately 7,000 different types of important pharmaceutical chemical composites have been extracted from plants and used for medicinal purposes, like atropine and hyoscine (antispasmodic), colchicine (anti-rheumatic), digital (cardiotonic), opium (model for analgesics), metphormine (antidiabetic), pilocarpine (antiglaucoma), salicylates (analgesic and anti-inflammatory), caffeine (stimulant), quinine (antimalaria), reserpine (hypotensor and sedative) and vinblastine and vincristine (chemotherapeutics.) Many natural active chemical composites have been used as basic structures for draw, synthesis, and development of new medicines. Therefore, substances obtained in the past naturally today are been produced commercially by chemical synthesis.

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Currently, drugs derived from natural sources have stand out among antivirus (mainly in the anti-HIV research), antitumorals and antimicrobials which, further than the great clinical applicability, present high added value, like taxol, podophyllotoxin and camptotecines. Consequently, the research of natural bioactive molecule continues to be a promising field of study.

In order to discover an active natural compound, however, the research must verify the effects caused by a total extract, called raw extract. Detailed studies regarding the therapeutic dosage, metabolic effect and toxicities must be done due to the complexity and multiplicity of active compounds existing in this type of extract. Many effects have already been described for different raw extracts, like antibacterial, hypoglycemic in induced diabetes, hepatoprotector and hypolipidemic activities. Still, it is necessary to be very careful about the indiscriminate use of natural extracts. More than the beneficial effects attributed to “teas,” when they are taken without control or sufficient studies about their consequences, they can cause induced nephro or hepatotoxicity, since strange organisms are normally metabolized by the liver or eliminated directly by the kidney. Moreover, it is indicated to purify and determine the active compounds for better control of the amount and dose to be used.

Brazil is the country with the biggest vegetal genetic biodiversity of the world, with more than 55,000 species catalogued out of an estimated 350.000 and 550.000. Parana state’s flora is rich in plants with therapeutical activities already proven in the literature, like *Bauhinia forficata*, *Phyllanthus niruri*, *Ottonia martiniana* and *Hedera helix*. Since many synthetic drugs are produced having natural drugs as models, the study of vegetal extracts and its components are of great clinical and commercial interest. Furthermore, with the speed that vegetal species are being extinct, an enormous number of plants with medicinal properties may disappear before its value becomes recognized, making urgent the necessity to intensify the investments in this area.

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