

# EXPERIENCE IN THE INTEGRATION OF INDUSTRY AND GROWERS IN THE PRODUCTION AND MARKETING OF MEDICINAL PLANTS

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## Abstract

The objectives of the integration are: (i) to take part in the process of revalorization of the most used medicinal and aromatic plants and with scientific confirmation; (ii) to integrate the production process of medicaments, through cultivation, thus avoiding predatory collection; (iii) to offer the market a quality product in the necessary quantities. For growers, this integration affords an alternative for income and promotes the adoption of an ecologically responsible agricultural system. The steps which comprise this action are described. The first experience began in 1995 with Laboratório Catarinense and resulted in an agreement signed between EMATER-PR and the industry for technical assistance and support to growers of chamomile. The product was of excellent quality but it was not possible to deliver the contracted amount due to a long drought. The planting of other selected plants started too. The number of partners increased and the processing industry started to negotiate with growers associations from other regions of Paraná to receive “espineira-santa” (*Maytenus ilicifolia*), from the county Guarapuava; artichoke (*Cynara scolymus*) and other species, from the counties Prudentópolis and Almirante Tamandaré. Integration to new industries are underway, which has brought benefits to both sides.

## 1. Introduction

Today's world is undergoing a revision of values which is reflected in, among other things, the way of life and in the concern with the environment. In food products, there is a concern over, and a growing demand for, chemical-free products by the more enlightened segment of the population. As a consequence, food products produced under the organic agriculture system increased in demand. The demand for natural food coloring (dyes), scents and preservatives has also increased. In the area of healthcare, a growth can be seen in the demand for plant based medicines, due to research which have proven the efficacy which had been attributed to them by the population and the belief that these would also have less side effects (which is not necessarily true!).

The world market for “natural products” involves an amount in the order of US\$ 14.5 billion (Sears 1995) and is still growing (Boeck, Stuart, 1993).

On the other hand, medicinal and aromatic plants have been used by man since the earliest days and, even nowadays, according to an estimate by the World Health Organization (WHO), about 80% of the population still resorts to traditional medicine to address their basic healthcare needs (Farnsworth *et al.* 1985). In Brazil this is certainly true.

WHO, in its 31<sup>st</sup> Assembly recommended the implantation of this alternative practice in the healthcare network (Organización 1993). In Brazil, Resolution CIPLAN number 8/88, implemented phytotherapy in the healthcare services. CEME – Central de Medicamentos [Medicine Central] promotes studies which have already scientifically proven the

therapeutic effect of many plants traditionally used by the population. The register of phytotherapeutical substances has also been regulated (Brasil 1995.)

A third factor to which the successful rebirth in the interest for medicinal and aromatic plants can be attributed is that, in spite of the advances made by organic chemistry in the synthesis of compounds and by biotechnology, medicinal plants are still a major source of raw materials for medicaments, and the most promising field to obtain compounds for the development of new products. Studies to this effect are being developed by public and private agencies.

The increase in the demand makes the problem of quality in the plants used even more serious. Studies have shown that 50% of the products on the market had some kind of irregularity due to the presence of foreign organic matter, dirt and insects, problems of identification, product content below the stated level, and adulteration (Marques *et al.* 1990; Marques 1992). Therefore the products used by the population, in particular the urban contingent, do not have the expected therapeutic and aromatic properties and/or are contaminated by impurities. Besides the low level of awareness of the consumers in relation to the quality of the product, there are problems in inspection. As a consequence, the large-scale buyers of plants pay low prices to the producer who offers in return a low quality product, thus closing the vicious circle. Besides the problems generated by quality, there are also the environmental problems caused by the collection activity, which is endangering certain indigenous species (Paraná 1995).

Therefore, cultivating medicinal, aromatic and spice plants becomes fundamentally important, as it is the way to address the demand for these species, safely identified and of good quality, thus avoiding predatory collection (Corrêa Júnior *et al.* 1991).

The objectives of the integration are: (i) to take part in the process of revalorization of the most used medicinal and aromatic plants and with scientific confirmation; (2) to integrate the active process of production of effective medicaments, through cultivation, thus avoiding predatory collection; (3) to offer the market a quality product in the necessary quantities. For the growers, this integration affords an alternative for improved income and promotes the adoption of an ecologically responsible agricultural system.

The State of Paraná is prominent in the national medicinal and aromatic plant scenario. There are approximately 25 farms that cultivate more than 60 hectares, using the organic production method. The species most commonly cultivated are: artichoke (*Cynara scolymus*), rosemary (*Rosmarinus officinalis*), sweet basil (*Ocimum basilicum*), rue (*Ruta graveolens*), "aveloz" (*Euphorbia sp*), bitter aloes (*Aloes ssp*), beggars buttons (*Arctium lappa*), "boldo do reino" (*Coleus barbatus*), marigold (*Calendula officinalis*), chamomile (*Chamomilla recutita*), lemon grass (*Cymbopogon citratus*), common nasturtium (*Tropaeolum majus*), carqueja (*Baccharis trimera*), tansy (*Tanacetum vulgare*), horsetail (*Equisetum sp*), "chapéu-de-couro" (*Echinodorus grandiflorus*), citronella (*Cymbopogon winterianus*), coriander (*Coriandrum sativum*), cumin (*Cominum cyminum*), comfrey (*Symphytum officinale*), dandelion (*Taraxacum officinale*), Brazilian lemon verbena (*Lippia alba*, *L. citriodora*, *L. geminata*), water smartweed (*Polygonum sp*), wormseed goosefoot (*Chenopodium ambrosioides*), "espinheira-santa" (*Maytenus ilicifolia*, *M. aquifolia*), fennel (*Foeniculum vulgare*), ginger (*Zingiber officinale*), peppermint (*Mentha spp*), bitter orange (*Citrus aurantium*), wormwood (*Artemisia absinthium*), marjoram (*Origanum majorana*), passion-flower (*Passiflora alata*, *P. edulis*), "macela" (*Achyrocline satureioides*), "mastruço" (*Coronopus didymus*), carilla fruit (*Momordica charantia*), lemon balm (*Melissa officinalis*), yarrow (*Achillea millefolium*), oregano (*Origanum vulgare*), "pata-de-vaca" (*Bauhinia forficata*), penny-royal (*Mentha pulegium*), "quebra-pedra" (*Phyllanthus ssp*), elder (*Sambucus sp*), sage (*Salvia officinalis*), sweetleaf (*Cuphea balsamona*), plantain (*Plantago australis*, *P. major*, *P. lanceolata*), thyme (*Thymus vulgaris*), among other species. The biggest crop is

chamomile, the most dominant medicinal crop in the State, where the Metropolitan Region of Curitiba can be seen as the largest producer with about 200 growers and a cultivated area of 300ha yielding 150t, and productivity in the order of 500 kg/ha. The market for this species has been growing at a rate of 5-10% a year (Corrêa Júnior 1994).

## 2. Integration between growers and processing industry

The rural development service (EMATER-PR) has always promoted the integration of processing industry and growers of aromatic and medicinal plants because, different from the other agricultural products such as beans, corn, soy, etc. – that have their sale assured even if at a lower price level –, medicinal plants are difficult to place due to the small, limited number of buyers. In 1989, the service started to collaborate with the Phytotherapy Project of SUS-PR (Perozin 1989), which proposed a multi-professional and inter-institutional integration. In 1994, during the IV National Convention of Phytotherapy in the Public Service and the XIIIth Symposium of Medicinal Plants in Brazil, the first contacts were made with Laboratório Catarinense with a view to proposing joint action, which consisted of the following items:

2.1. Meeting of technicians from EMATER-PR and Laboratório Catarinense to draft the joint proposal

2.2. Definitions:

- Of the species to be produced;
- Of the amount to be produced for each species;
- Of the production system – free of agro-chemicals;
- Follow up and technical orientation by EMATER-PR, issuing an agronomic report per lot produced;
- Industry demands in relation to production and processing (ex.: drying temperature);
- Price to be paid to the producer = Market average + 50%.

2.3. Meeting of growers with managers of the industries and technicians from EMATER-PR, defining the joint action system, selecting interested growers and the medicinal plants to be grown.

2.4. New meeting, already with the involvement of the selected growers, defining area and species to be cultivated by each producer, quantity and time of delivery.

2.5. Signing by both parties of contracts setting out the terms that were agreed

The first experience began in 1995 with Laboratório Catarinense and resulted in an agreement signed between EMATER-PR and the industry for technical assistance and support to growers of chamomile. The presented product was of excellent quality but it was not possible to deliver the contracted amount due to a long drought. The planting of other selected plants started too. The wormwood harvested in 1996 was also of excellent quality. The number of partners increased and the industry started to negotiate with growers associations from other regions of Paraná to receive “espinheira-santa” (*Maytenus ilicifolia*), from the county Guarapuava, artichoke (*Cynara scolymus*) and other species from the counties Prudentópolis and Almirante Tamandaré. Integration to new industries is underway, which has brought beneficial results to both sides.

Currently there are two industries procuring their medicinal plants from 8 growers cultivating areas, which totalize 25 ha. The demand generated by the request for developing medicinal plants and phytotherapy by 13 municipalities was addressed. Besides the growers directly assisted by EMATER-PR, it is estimated that 25 growers, for a total of 60 hectares, are cultivating medicinal plants following the organic method.

### 3. Results and discussion

From the above account, it can be concluded that this trade modality for medicinal and aromatic plants is ideal both, for the grower – whose sales at a fair price are guaranteed – and the industries, such as for example Laboratório Catarinense – that receive a quality product with a certificate of origin and with a agronomic statement of compliance issued by the technician who performs the follow up on production, and with the characteristics desired in the raw material for their products. It is recommended that more industries should practice this form of trade, as it is the only way to change the existing situation of low quality of medicinal plants on the market.

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