

Preservation of botanicals

There has been an increase in the popularity of herbal remedies which has resulted in increase in demand for botanicals. However, there is a growing need to understand the problems in storing botanicals. Botanical products are stored for sometime before consumption, and by virtue of their composition they are vulnerable for development of mould, bacterial attack and insect infestation. The factors which influence spoilage or deterioration are moisture content, temperature, light and the presence of oxygen. When these conditions are suitable living organisms like bacteria, moulds, mites and insect will rapidly multiply, using the drug as source of nutrient. Poor processing of botanicals also results in deterioration in quality. Normally, air dried botanicals contain about 10-12 % moisture, and in some instances this may be sufficient to activate enzymes to bring about decomposition of glycosides. Botanicals rich in mucilage will quickly absorb moisture and tend to become sticky. A significant increase in temperature during storage would result in loss of volatile constituents and in combination with moisture, may accelerate enzyme activity.

As a general rule, during drying of botanicals the moisture must be brought to safer level to prevent deterioration of botanical, be it chemical, microbial or insect infestation. Sensitive botanicals may be kept in sealed containers with dehydrating agent. For large quantities use of dehumidifiers are recommended. Volatile oils should be stored in sealed, well-filled containers in a cool, dark place.

Control of insect pests: Botanicals in warehouse are always liable to the attack of insects and other pests. A good amount of care need be undertaken to prevent the infestation, followed by curative measures once infested. Sanitation plays an important role in reducing pest populations and in preventing outbreaks. Warehouses should be maintained clean, well ventilated, with low temperature and filling in all cracks in floorboards with suitable cement or lime paste. Adequate space between different products and different consignment would help in minimizing the spread of infection if it occurs. Low temperature storage offers great advantage. It not only checks insect, bacteria and mould attack but also will gradually destroy insects, larvae and eggs. When infestation exists, cover up bag stacks with a tarp and fumigation by gases and toxic vapors such as phosphine derived from aluminum phosphide, methyl bromide and ethylene oxide and use of dusts and sprays once or twice during storage often give good results.

Undertake fumigation when the populations are at their lowest level and the warehouses are cool. The advantage of this schedule is that the quantity of botanicals to be fumigated is much less than when they are severely infested. Treatment involving use of fumigants must be carried out by professional operators and in accordance with the health and safety requirements. It would be better to sacrifice infected botanicals rather than to risk the spread of contamination. The infected consignment should be removed from the vicinity of good ones and the space they have occupied thoroughly cleaned before new stock is admitted.

In conclusion, all the possible scientific measures should be employed during storage of botanicals to prevent their deterioration so that quality botanicals are made available for healthcare.