INTRODUCTION

The wealth of India is stored in the enormous natural flora of medicinal plants which has been naturally gifted to us. The medicinal plants are found growing widely in India under varied climatic conditions. The cultivation of medicinal plants is of great importance in the national economy and their potential for the rapid growth of phyto-pharmaceuticals and other allied industries has found essential. It is necessary that more and more medicinal crops be commercially cultivated as field crops. At present, bulk of the raw material is obtained from wild sources, whereas only a few are under systematic cultivation as drug plants in our country. Efforts have been made to create more interest in cultivation of such plants. The leaves, roots, stems, fruits and seeds of such plants yield good quality of phytochemicals. It is clear from the literature that the plants during cultivation and also during storage are attacked by number of pathogenic fungi which result in a great loss in the medicinal value of the contents of the plants as whole or the part of the plant which is important for medicinal value.

Therefore such infected or contaminated herbal parts it are used for preparation of medicines, the quality of the resulting medicine is likely to be adversely affected and the medicine may become hazardous rather than curative. Hence some microbial standardization work may be carried out to check the sterility of the Indian medicinal drugs as started by Hom Saveni
Gopal (1980). Considering the importance of the fact, the present studies on the fungal diseases of medicinal plants and stored herbal parts used in ayurvedic medicines were carried out.

The present research work has been divided into two main parts. In the first part attempts have been made on the isolation and identification of fungal pathogens on different medicinal plants and their plant parts. For this the isolation of fungi was made from infected medicinal plants collected from different regions of Maharashtra at different stages of cultivation of medicinal plants in field. It was interesting to observe that, different medicinal plants specially Withania somnifera (Dunal.), Rauwolfia serpentina (Benth.), Glycyrrhiza glabra (Linn.), Emblica officinalis (Gaerth.), Asparagus racemosus (Willd.), Chlorophytum borivilianum (Santapau and Farnandes), Strychnos nux-vomica (Linn.), Aloe barbadensis (Mill.), Centella asiatica (Linn.) and Zingiber officinale (Rosc.) showed association of different fungi having different pathological behavior. During studies on survey of medicinal plant diseases it was interesting to note that following diseases were highly destructive to the crops in live field like leaf spot disease of Aloe barbadensis (Mill.) caused by fungus Alternaria alternata(fr.)Keissler, leaf spot of Centella asiatica (Linn.) caused by pathogen Cercospora centellae, leaf spot disease of Chlorophytum borivilianum (Santapau and Farnandes) infected by fungus Colletotrichum dematium etc. During the process of biodeterioration extra cellular hydrolytic enzymes play very important role in the invasion and
establishment of plant pathogen (Bateson and Miller, 1966 and Wood, 1967). Therefore six pathogenic moulds like *Aspergillus flavus* (Link.), *Curvularia lunata* (Wakker) Boed., *Alternaria alternata* (fr.) Keissler, *Fusarium oxysporum* (Schle.), *Phytophthora* sp. (de Bary.), *Rhizoctonia solani* (Kuhn.) were screened for their ability to produce amylase, lipase, cellulase and pectolytic enzymes.

The second part of the research work has been fully devoted for the studies on isolation of storage fungi from stored ayurvedic material from markets and ayurvedic shops. It is clear from the literature that damage to medicinal plants in field and during storage has been found mainly due to storage fungi. Medicinal plant parts undergo drastic chemical changes from field to factory due to microbial action. During transport of crude drugs to the market may involve various types of damages which may result into qualitative and quantitative loss of the samples. Similarly pathogenicity of different fungi was tested on artificially cultured healthy medicinal plants *Aloe barbadensis* (Mill.) and *Solanum viarum* (Linn.)

In order to control the biodeterioration of different medicinal plant parts, effect of some plant extracts specially *Calotropis gigantea* (R.Br.), *Ocimum sanctum* (Linn.), *Azadirachta indica* (A.Juss.), *Withania somnifera* (Dunal), *Vinca rosea* (Linn.), *Lantana camera* (Linn.), *Adathoda vasica* (Nees.), *Tagetes erecta* (Linn.), *Vitex negundo* (Linn.), *Polyalthia longifolia* (Benth.and Hook.) were tested against various fungal pathogens. It was interesting to note that extracts of these plants proved to be inhibitory
against enzyme production in most of the moulds, like *Aspergillus flavus* (Link.), *A. niger* (Tieghem.) *Fusarium oxysporum* (Schle.), *Curvularia lunata* (Wakker) Boed, *Alternaria alternata* (fr.) Keissler. This clearly indicates that the antifungal chemicals in various leaf extracts may be used for the control of the infectious moulds. The inhibitory nature of plant extracts was found to be more in young leaves as compared to the matured leaves. Studies regarding biodeterioration of different medicinal plant parts due to artificial infestation of fungi were carried out and it was found that *Aspergillus flavus* (Link.), *A. niger* (Tieghem.), *Fusarium oxysporum* (Schle.), *Curvularia lunata* (Wakker) Boed and *Alternaria alternata* (fr.) Keissler were highly aggressive for causing loss of weight, degradation of alkaloid content, glycoside content, fat content and protein content of the medicinal samples. The species of *Aspergillus* were highly harmful for deterioration of plant parts.