ECONOMIC IMPORTANCE

Most of the members of the family Polyporaceae are of great economic importance chiefly because of their property to destroy wood very quickly. They are mainly responsible for wood-rotting processes and no other group of fungi could match them in this respect. All epixyloous species produce some form of decay or rot depending upon which constituents of host cells are utilized by their enzymatic activity. 'Brown rot' or carbonizing rot results when cellulose or other polysaccharides of the cell walls are attacked, whereas 'white rot' or delignifying rot results when the lignin from the cell wall is dissolved by the fungus. They cause white soft rot, white or brown pocket rot, or brown cuboidal rot in the wood attacked. These fungi strive to obtain food material for their existence and to perpetuate their kind and this activity brings about decay in useful timber and lumber thus seriously affecting the national economy. Anonymous (1950), in a 'List of common names of Indian plant diseases' compiled by a sub-committee appointed by the Plant Pathology Committee of the Indian Council of Agricultural Research, mentioned about 104 names of plants affected by one or more polypores causing wood-rot. To mention only a few Fomes annosus Fr. (*Heterobasidion annosum*) causes annosus butt rot in *Abies pindrow*, *Cedrus deodara*, *Picea morinda*, *Pinus excelsa*, *Pinus roxburghii* and *Quercus incana*; Fomes fomentarius heart rot in *Abies pindrow*, *Celtis australis*, *Picea morinda* and *Pinus excelsa*; Ganoderma
lucidum white spongy sap and heart rot in Acacia arabica, A. auriculaeformis, A. leucophloca, Acrocarpus fraxinofolius, Cassia javanica, C. siamea, Pongamia glabra and Terminalis tomentosa, foot rot in Areca catechu, white stringy rot in Bambusa sp., and collar rot in Cajan cajan, and Genoderma applantum white sap and heart rot in Albizzia procera, Bauhinia retusa, Dalbergia sissoo, Mangifera indica, Morus alba, Pinus roxburghii, Shorea robusta and Tectona grandis.

The pore fungi have a disastrous effect of destroying the felled and logged timber, saw timber and fire wood stored without proper care. Telegraph poles, fencings, rail road sleepers, wooden beams of bridges and the timbering in mines are also attacked by these fungi. Serpula lacymans, a true house fungus, and Coriolus veporarius, the white house fungus, are among the most injurious fungi to the buildings. Overholts (1953) mentioned "No other family of comparable size is more important economically than the Polyporaceae. Of the one hundred species of fungi that might be mentioned as of more or less importance in timber decays, seventy five at least would belong to this family, and these could probably be held responsible for 90% of the important decay produced in timber". The polypores also attack living trees, not only forest trees but also garden and park trees. The pine forests are destroyed by Phellinus pini, Quercus trees by Laetiporus sulphureus and Phellinus robustus, and hollowed trunks in apple, pear, mulberry and other trees are caused by Phellinus igniarius. P. pomaceus causes the neglected cherry and plus orchards to dry up
prematurely and cease fruiting. Heterobasidion annosum, a butt rot fungus, attacks the roots of conifers and brings about drying up and uprooting of trees by wind.

The polypores, apart from being exclusively injurious, are beneficial also. The decay process by these fungi at the same time releases new simpler elements into the soil readily available to other plants. Thus they increase the soil fertility by the mineralization of wood remnants and regulate the sanitary condition of forests. The young fructifications of polypores have been used as food by the natives in all parts of the world since early times such as Albatrellus ovinus, Polyporus umbelletus, P. frondosus, P. squamosus, Laetiporus sulphureus, Fistulina hepatica etc. The fructifications of Polyporus picipes and P. arcularius are sold as vegetables (fide Thind, 1973). Poria cocos is known to form large-sized, subterranean edible sclerotia known as 'fuhling' in China, as 'American tuckahoe' or 'Indian bread' in North America, and as 'bukuxyo' in Japan. The sclerotium is used in Chinese medicine and food, and under the name of 'Chinese root' about 1000 tons of sclerotium are exported every year. Edible sclerotia are also reported to be formed by Polyporus miltitae Cooke & Massee and P. sclerotinus Rodway in Australia, Tasmania and New Zealand, by P. sapurema A. Moll. in Brazil. Some other pore fungi used in folk medicine are Fomes fomentarius, Fomitopsis officinalis and the sterile form of Phellinus sp. known as 'Chaga'. Gloeophyllum abietinum is
used in steroid transformation. Bose (1947) discussed the antibacterial action of 'polyporin', an antibiotic he prepared from the culture-filtrate of Polystictus sanguineus. Fomes fomentarius was also used as a tinder for lighting fires. Pigmented species such as Inonotus hispidus are used for dyeing textiles in Soviet Central Asia. Piptoporus betulinus is used for making painter's charcoal. Fomes fomentarius, Fomitopsis pinicola and Ganoderma applanatum etc., having tomentose-suberose context, may be used in the production of cork (Vanin and Prikot, 1935: 129; fide Bondartsev, 1953:13). The polypores such as Inonotus hispidus, Fomes fomentarius etc. are also useful in obtaining 'ornamental' wood in their initial stages of growth when the original firmness of the wood is not decreased. Guitars and other string instruments are made of maple wood affected by the initial stage of infection by Oxyporus populinus. The 'screen' wood, having good heat-insulating properties, is obtained from conifers attacked by Phellinus pini, particularly its variety abietis, which after certain stages of decay becomes lighter like cork and can be a good substitute for other insulating materials. In certain parts of the world, some exquisite articles such as frames, hats, gloves, hand bags etc. used to be made from these fungi.

From the above account it is evident that the great economic importance of polypores justifies their thorough and extensive study.