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Ganoderma - A Portuguese Fungal Biofactory?

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The aim of this presentation is to collate the metabolites produced by representative species of *Ganoderma* and relate them particularly to biological activities. Many of the activities are against the major diseases of our time and so the review is of great importance. The metabolites consist of polysaccharides and terpenoids predominantly. *Ganoderma* is a basidiomycete white rot fungus which has been used for medicinal purposes for centuries particularly in China, Japan and Korea. The common names for preparations include Lingzhi, Munnertake, Sachitake, Reishi and Youngzhi, although what these actually represent is obscure. A great deal of work has been carried out on what may be *G. lucidum*. The taxonomy of the genus is in a state of great confusion and a chemotaxonomic approach will be beneficial. A seminal taxonomic work was undertaken in Portugal. Furthermore, it is predominantly the biological activities reported of preparations from *Ganoderma* which are remarkable. The list of effects is huge ranging from various cancers to relieving blockages of the bladder. However, the reports have not all been tested scientifically with the convincing evidence being reserved for assays of pure compounds. It is a prime example of an ancient remedy being of great relevance in the modern era. In general, there does appear to be an assumption that the therapeutic effects attributed to the fungus have been proven. The next step is to produce some effective medicines which may be hampered by problems of mass production. Work to be undertaken at the Centro de Engenharia Biológica will concentrate on optimising yields of bioactive compounds from especially freshly-isolated Portuguese strains using solid substrate and liquid air lift bioreactors. Screening for novel compounds and activities will be undertaken.

Paterson R.R.M. (2006) *Ganoderma* - a therapeutic fungal biofactory. *Phytochemistry* 67, 1985-2001.

Paterson R.R.M. (2006) *Ganoderma* disease of oil palm - a white rot perspective necessary for integrated control. *Crop Protection* doi:10.1016/j.cropro.2006.11.009