An Overview of *Ganoderma lingzhi* Constituents on α-Glucosidase and Aldose Reductase Inhibitory Activity

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Ganoderma lingzhi is the medicinal woody mushroom which have been known to have hundreds bioactive compounds. The lanostane-type triterpenoids with carboxyl group in the side chain or known as ganoderma acids were isolated from the fruiting body of *G. lingzhi*. Some of these compounds were established as active inhibitors of α-glucosidase and human recombinant aldose reductase *in vitro*. The research objective is to enlighten the role of structural requirement of ganoderma acids both for α-glucosidase and aldose reductase inhibition.

Comparing the inhibitory activity of these two enzymes, the structure–activity studies of ganoderma acids showed that the hydroxyl substituent at C-11 and the carboxylic group in the side chain are an important feature both for the recognition of α-glucosidase and human recombinant aldose reductase inhibitory activity. Furthermore, the double-bond moiety at C-20 and C-22 in the side chain and the hydroxyl substituent at C-3 of ganoderma acids enlarge the inhibitory activity of both enzymes. These outcomes offer an approach which to regard as the structural requirements of lanostane type triterpenoids acids from G. *lingzhi*.

A consideration of these requirements is essential in order to develop a new type for substances that can be improved to prevent the diabetic complications.

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