Isolation and Identification of Cardenolide Compounds of *Gomphocarpus sinaicus* and Their Fungicidal Activity Against Soil Borne and Post Harvest Fungi

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**Abstract**

This study was undertaken to explore new antifungal compounds from the methanolic extract of *G. sinaicus*. Two cardenolide compounds were isolated and identified by GC-MS as cardenolide glycoside, 15-hydroxy-3,4,5,6-dehydrocalotropin and cardenolide genin, 3,4,5,6-dehydrocalotropagenin. The antifungal activity of these compounds was assessed. Results revealed that both compounds showed pronounced fungicidal activity against both soil borne fungi, *R. solani*, *F. oxysporium*, and postharvest fungi, *R. stolonifer*, *P. digitatum*, compared to the standard fungicides, flutolanil and copper oxychloride, respectively. The EC50 values of the cardenolide genin were 0.703, 13.63 and 4.22, 8.403 µg/mL for *R. solani*, *F. oxysporium* and *R. stolonifer*, *P. digitatum* respectively. On the other hand, the EC50 values of the standard fungicide, flutolanil, were 9.49 and 61.22 µg/mL against *R. solani* and *F. oxysporium*. While the EC50 values of copper oxychloride were 279.94 and 187.13 µg/mL against *R. stolonifer* and *P. digitatum*, respectively. The
results showed that cellulase, PME, PPO of the tested fungi was more sensitive than to cardenolide genin. The strong antifungal activity of cardenolide genin reported in this study indicated that has a potential to be used as fungicides.

**Key words:** *Gomphocarpus sinaicus*, cardenolide glucosides, fungicidal activity, fungitoxicity, enzymes.

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