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Blood Glucose Level Lowering Activity of Methanol and Methylene chloride Extracts of the Lichen- ***Parmotrema grayana*** on rats

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This research examined the blood glucose level lowering ability of the lichen *Parmotrema grayana* (Family: *Parmeliaceae*). The active products contained in the lichen were extracted into methanol and methylene chloride solvents by sonicating the dried lichen for 5 hrs at room temperature. The glucose lowering ability of the lichen extract was tested by using normoglycaemic fasted rats as an animal model.

Healthy adult Wistar albino male rats were fed with two oral doses (600, 1200 mg/kg, N=6/group) of each methanol and methylene chloride extracts of the lichen in the presence of 1 % methyl cellulose (vehicle). There is a significant fasting blood glucose level lowering activity ($p<0.05$) at 2^{nd},3^{rd} and 4^{th} hrs in the methanol extract treatment group (600 mg/kg) compared to the control group, whereas methylene cloride extract treatment group (600 mg/kg) has significant fasting blood glucose level lowering activity ($p<0.05$) at 2^{nd} ,3^{rd} and 4^{th} hrs compared to the control group. Furthermore there is a significant fasting blood glucose level lowering activity ($p<0.05$) at 1^{st}, 2^{nd}, 3^{rd} and 4^{th} hrs in the methanol extract treatment group (1200 mg/kg) compared to the control group, whereas methylene cloride extract treatment group (1200 mg/kg) has significant fasting blood glucose level lowering activity ($p<0.05$) at 2^{nd} ,3^{rd} and 4^{th} hrs compared to the control group.

These results concluded that, the methanol extract and methylene chloride extracts of *P. grayana* have profound blood glucose lowering activity in normoglycaemic rats and this blood glucose impairing activity had a rapid onset (1 hr) and lasted up to 4 hr. It would lead to the development of a potent oral hypoglycaemic agent from this lichen for the effective treatment of diabetes mellitus.