

Objective: To determine the anti-diabetic activity of combined aqueous extracts (1:1mixture) of dry leaves of *Psidium guajava* linn and *Moringa oleifera* lam as well as to compare the anti-diabetic activity of these plants by in vitro methods.

Methods: In vitro alpha amylase inhibitory assay was performed on porcine alpha amylase and the absorbance was measured at 540nm using a microplate reader and glucose diffusion inhibitory assay using dialysis membrane. Acarbose was used as the standard in the above mentioned methods.

Conclusion: The combined extract of the leaves of the 2 plants was found to be more effective than individual plant extracts against diabetes. On comparison of two plants *Psidium guajava* was found to be more active against diabetes than *Moringa oleifera*. Also the potentiation effect shown by the combination of extract may be due to synergistic effect of the phytochemical constituents. As the 1:1 mixture of the aqueous extract is found to be more active, the combination of the two plants can be used to formulate drugs for treating diabetes.



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EFFECT OF COMBINATION OF 2 AQUEOUS LEAF EXTRACTS ON DIABETES MELLITUS

*EFFECT OF COMBINATION OF AQUEOUS LEAF EXTRACTS OF
PSIDIUM GUAJAVA LINN AND MORINGA OLEIFERA LAM ON
DIABETES MELLITUS*



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ABSTRACT

Objective: To determine the anti-diabetic activity of combined aqueous extracts (1:1 mixture) of dry leaves of *Psidium guajava linn* and *Moringa oleifera lam* as well as to compare the anti-diabetic activity of these plants by *in vitro* methods.

Methods: *In vitro alpha amylase* inhibitory assay was performed on porcine *alpha amylase* and the absorbance was measured at 540nm using a microplate reader and glucose diffusion inhibitory assay using dialysis membrane. Acarbose was used as the standard in the above mentioned methods.

Results: The mixture (1:1) of aqueous plant extracts (at a concentration of 100µg/ml) of *Psidium guajava linn* and *Moringa oleifera lam* exhibited 72.08333% inhibition with IC₅₀ value of 10.9µg/ml. The leaf extracts of *Psidium guajava* (at a concentration 100µg/ml) exhibited 71.23288% of a α amylase inhibitory activity with an IC₅₀ values 19.883µg/ml whereas the leaf extracts of *Moringa oleifera* (at a concentration of 100µg/ml) exhibited 70.58824% of α amylase inhibitory activity with an IC₅₀ value of 27.974 µg/ml. The acarbose (standard drug) at a concentration of 100µg/ml showed 72.09302% inhibitory effect on the α amylase activity with an IC₅₀ value 8.9µg/ml. In glucose diffusion inhibition assay the mixture of plant extracts exhibited 76.57% inhibition at 150 min which produces more effects than the two plants. The aqueous extract of *Psidium guajava* leaves exhibited maximum glucose diffusion inhibition (75.32%) at 150 min as well as *Moringa oleifera* leaf extract showed the maximum inhibition of 73.70% at the same time interval. For acarbose the percentage was 82.74 at 150 min. The interpretation of the results was done by one-way anova method.

Conclusion: The combined extract of the leaves of the 2 plants was found to be more effective than individual plant extracts against diabetes. On comparison of two plants *Psidium guajava* was found to be more active against diabetes than *Moringa oleifera*. Also the potentiation effect shown by the combination of extract may be due to synergistic effect of the phytochemical constituents. As the 1:1 mixture of the aqueous extract is found to be more active, the combination of the two plants can be used to formulate drugs for treating diabetes.

Keywords: *Alpha amylase* inhibitory assay, Glucose diffusion inhibition assay method, *Psidium guajava*, *Moringa oleifera*, and IC₅₀



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