P2-1 A Pharmacological Investigation of the Hypoglycemic Activity of *Artemisia afra*

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Artemisia afra is a plant whose medicinal attributes have been known for many decades in South, Central, and Eastern Africa. Folklore study indicates that aqueous extracts and infusions of the plant have been used to alleviate many diverse illnesses including diabetes mellitus (1). However, there appears to be no scientific data on its hypoglycemic activity, hence the need for the present study.

Pharmacological screening of an ethanol-insoluble solid (AAG_1) isolated from the leaves of *Artemisia afra* collected in Kenya indicates that this could be one of the possible hypoglycemic principles.

CI-MS and NMR measurements indicated that AAG_1 was a mixture of three long chain fatty esters with molecular formulae $C_{44}H_{88}O_2$ (649), $C_{46}H_{92}O_2$ (676), and $C_{48}H_{96}O_2$ (704). The possible structural formulae were deduced from the fragmentations as:

a) $C_{25}H_{51}COOR^1$ or $C_{23}H_{47}COOR^2$
b) $C_{23}H_{47}COOR^1$ or $C_{21}H_{43}COOR^2$
c) $C_{21}H_{43}COOR^1$ or $C_{19}H_{39}COOR^2$

Where R^1 and R^2 are $C_{22}H_{45}$ and $C_{24}H_{49}$, respectively.

To investigate the hypoglycemic effect, normotensive New Zealand white rabbits of both sexes weighing 2–3 kg were used. The fasting blood sugar levels were determined after intramuscular administration of 1 mg/kg and 2 mg/kg AAG_1 suspension in 2 % acacia at 30 minutes intervals over a period of three hours. Six rabbits were used for each dose.

A dose dependent mean percentage glycemia variation was observed. 1 mg/kg dose caused a drop of the fasting blood sugar level which reached an optimal value of −20.8 % after 150 minutes. An oral dose of 25 mg/kg induced a slow but sustained hypoglycemia which was significant even after 24 hours (−27.3 %). This finding may be of significance in the management of chronic diabetic patients using *Artemisia afra* extract. No sex variation in response to AAG_1 was observed.

The details of our study and other pharmacological findings will be discussed.

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References

1. Watt, J. M., Breyer-Brandwijk. (1962) in: The Medicinal and Poisonous Plants of Southern and Eastern Africa, 2nd Edition, E & S Livingstone, London.