

Anti-diabetic properties of flavonoid compounds isolated from *Hyphaene thebaica* epicarp on alloxan induced diabetic rats

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ABSTRACT

Background Diabetes mellitus, becoming the third killer of mankind after cancer and cardiovascular diseases, is one of the most challenging diseases facing health care professionals today. That is why; there has been a growing interest in the therapeutic use of natural products for diabetes, especially those derived from plants. Aim To evaluate the anti-diabetic activity together with the accompanying biological effects of the fractions and the new natural compounds of *Hyphaene thebaica* (HT) epicarp. Materials and Methods 500 g of coarsely powdered of (HT) fruits epicarp were extracted by acetone. The acetone crude extract was fractionated with methanol and ethyl acetate leaving a residual water- soluble fraction WF. The anti-diabetic effects of the WF and one of its compounds of the acetone extract of the (HT) epicarp were investigated in this study using 40 adult male rats. Results Phytochemical investigation of active WF revealed the presence of ten different flavonoids, among which two new natural compounds luteolin 7-O-[6 -O-a-L- rhamnopyranosyl]-b-D-galactopyranoside 3 and chrysoeriol 7-O-b-D-galactopyranosyl (1 2)-a-L-arabinofuranoside 5 were isolated. Supplementation of the WF improved glucose and insulin tolerance and significantly lowered blood glycosylated hemoglobin levels. On the other hand, compound 5 significantly reduced AST and ALT levels of liver, respectively. Likewise, the kidney functions were improved for both WF and compound 5, whereby both urea and creatinine levels in serum were highly significant. Conclusion The results justify the use of WF and compound 5 of the (HT) epicarp as anti-diabetic agent, taking into consideration that the contents of WF were mainly flavonoids.

KEYWORDS

Anti-diabetic activity . epicarp . *hyphaene thebaica* . novel flavonoids

REFERENCES