Thymoquinone was administrated to streptozotocin-induced diabetic female rats (25mg/kg/day) during 21 days. Glycemic fluctuation was scrutinized and hepatic effects were assessed through biochemical analysis.

Thymoquinone significantly reduced (-26%) the hyperglycemia induced by Nicotinamide/Streptozocin. In vitro enzymatic evaluation showed that thymoquinone inhibited the α-glucosidase with an estimated half maximal inhibitory concentration (IC 50) = 125.03 µg/ml. This hypoglycemic effect seems strong with a Thymoquinone IC 50 much lower than the IC 50 of the reference hypoglycemic drug, acarbose = 388.8 µg/ml. Biologically, thymoquinone improved the hepatic markers in treated diabetic rats:

- ALT: 39.9 ± 2 IU/L, GGT: 1.2 ± 0.5 IU/L, Total bilirubin: 0.045 ± 0.01 mg/dL, alkaline phosphatase 305.7 ± 83 IU/L

versus non-diabetic rats:

- ALT: 22.1 ± 2, GGT: 0.87 ± 0.1 IU/L, Total bilirubin: 0.023 ± 0.004 mg/dL, alkaline phosphatase 430 ± 75 IU/L

Thymoquinone significantly reduced blood sugar in diabetic murine models and acts as an oral anti-diabetic drug: its anti-hyperglycemic action is partly explained by a potent α-glucosidase inhibition.

Thymoquinone might also have positive effects on the hepatic biological and histological parameters.

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