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Preliminary comparative study of anti-inflammatory effect of unheated and heat-treated Sahara honey: *In vivo* approach

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ABSTRACT

Objective: To investigate the effect of unheated and heat-treated of Sahara honey.

Methods: A total of 24 Swiss albino mice weighing 25–35 g were divided into four groups ($n = 6$). Anti-inflammatory effect was assessed at 1, 2, 3, 4, 5 and 6 h after subplantar injection of carrageenan (0.5 mL of a 1% solution in normal saline). In addition, total phenolic content was determined by modified Folin-Ciocalteu method.

Results: The total phenolic content capacity of the Sahara honey before and after heat treatment was between 72 and 97.9 mg of gallic acid equivalents/100 g of honey respectively. Administration of unheated honey (oral administration) reduced significantly ($P < 0.05$). The carrageenan induced mice paw edema model at 1, 3 and 6 h for 21.85%, 5.43% and 80.43%, respectively. Administration of heat-treated honey showed insignificant inhibition of carrageenan and induced paw edema at 1 h (31.16%), 3 h (0.25%) and 6 h (34.19%). The 50 mg/kg diclofenac exhibited percent reduction in paw volume 16.12%, 8.90% and 15.32% after 1 h, 3 h and 6 h, respectively, when compared with control animals. No toxicity was identified.

Conclusions: Our results suggest that unheated Sahara honey has anti-inflammatory effects by reducing the mice paw edema size while heat-treated Sahara honey decreases the antiinflammatory activity.

Keywords: Sahara honey Heating Anti-inflammatory Total phenolic content