Aniseed oil increases glucose absorption and reduces urine output in the rat.

Kreydiyyeh SI, Usta J, Knio K, Markossian S, Dagher S.

Department of Biology, Faculty of Arts and Sciences, American University of Beirut, Beirut, Lebanon. sawkreyd@aub.edu.lb

Anise (Pimpinella anisum) has been used as a traditional aromatic herb in many drinks and baked foods because of the presence of volatile oils in its fruits commonly known as seeds. Hot water extracts of the seeds have been used also in folk medicine for their diuretic and laxative effect, expectorant and anti-spasmodic action, and their ability to ease intestinal colic and flatulence. The aim of this work was to study the effect of aniseed oil on transport processes through intestinal and renal epithelia and determine its mechanism of action. The essential oils were extracted from the seeds by hydrodistillation and analyzed by gas chromatography. Aniseed oil enhanced significantly glucose absorption from the rat jejunum and increased the Na+-K+ ATPase activity in a jejunal homogenate in a dose dependent manner. The oil, however, exerted no effect on water absorption from the colon and did not alter the activity of the colonic Na+-K+ ATPase. When added to drinking water, it reduced the volume of urine produced in the rat and increased the activity of the renal Na+-K+ ATPase even at extremely low concentrations. It was concluded that aniseed oil increases glucose absorption by increasing the activity of the Na+-K+ ATPase and consequently the sodium gradient needed for the sugar transport. Its anti-diuretic effect is also mediated through a similar mechanism in the kidney whereby a stimulation of the Na+-K+ pump increases tubular sodium reabsorption and osmotic water movement. The colonic Na+-K+ ATPase was however, resistant to the oil.

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