Gastric Anti-ulcer, Anti-secretory and Cytoprotective Properties of Celery “Apium graveolens L.” in Rats

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Abstract
Celery seed is generally regarded as safe for human consumption as a spice, natural seasoning and plant extract/essential oil. The present study was carried out to assess the possible anti-gastric ulcer, cytoprotective and antisecretory properties of ethanolic extract of Apium graveolens in rats in order to substantiate the traditional Unani, Arab and Ayurvedic medicine practitioners’ claim of its use in stomach disorders.

500 grams of the shade dried aerial parts of celery was coarse powdered and macerated in 3 liters of 96% ethanol for 72 hours using percolation method. Wistar albino rats were used. The stomach was removed, opened along the greater curvature, washed with saline and the inner surface was examined with a 6.4×binocular magnifier. Celery extract was administered orally (250 and 500 mg/kg body weight) 30 minutes before indomethacin. The rats were killed 6 hours after indomethacin administration. Gastric antisecretory activity was evaluated in rats. The animals were deprived of food for 36 h with access to water ad libitum. Under light ether anaesthesia, a small midline abdominal incision was made and the pylorus ligated. The wound was closed using sterile suture. The plant extract or normal saline was administered intraperitoneally immediately after pylorus ligation. Six hours after pylorus ligation the animals were sacrificed by cervical displacement. The plant extract or normal saline was administered intraperitoneally immediately after pylorus ligation. Six hours after pylorus ligation the stomachs were removed from both groups (treated and control), the gastric contents collected and centrifuged. The volume of the supernatant was measured and titratable acidity of liquid gastric content was recorded and calculated.

Celery extract produced a dose-dependent significant protection against the ulcerogenic effect induced by indomethacin. In the ethanol and strong alkali-induced ulcer protocol, it was observed that the treatment with ethanolic extract of celery (250 and 500 mg/kg) significantly reduced the lesion index. A highly significant reduction of ulceration in rats’ stomach and intraluminal bleeding was recorded after celery extract pretreatment at the dose of 500 mg/kg orally. In the gastric secretion determination model, using ligated pylorus for 6 h, the treatment with celery extract (250 and 500 mg/kg i.p.), reduced the volume of basal gastric secretion, titratable acidity and ulceration significantly in comparison with control group. The results show that ethanol extract of Celery displays gastroprotective activity, as demonstrated by its significant inhibition of the formation of ulcers induced by different experimental models, and its ability to decrease basal gastric acid secretion. This gastric antiulcer capacity of celery extract could be related to its antioxidant properties, resulting in reduction of the lipid peroxidation and elevation of the NP-SH contents, besides, improving mucus coat of the stomach. Therefore, we suggest that due to its antioxidative effects, it may be useful in the prevention of gastric disorders.

Biography
Tawfeq AlHowiriny has completed his Ph.D at the age of 29 years from University of Pittsburgh, Pennsylvania. He is the director of Herbal medicine products committee at SFDA. He has published more than 40 papers in reputed journals and serving as an editorial board member in many international journals as well.