

Antiulcer activity of *Spirulina platensis* and golden kiwifruit extracts on indomethacin-induced gastric ulcer in rats

***Sami A. Althawb*¹, *Ibrahim S. Aleid*¹ and *Hassan Barakat*^{1,2}**

¹Food Science and Human Nutrition Department, College of Agriculture and Veterinary Medicine, Qassim University, Saudi Arabia; ²Food Technology Department, Faculty of Agriculture, Benha University, 13736 Moshtohor, Qaliuobia, Egypt

Non-steroidal anti-inflammatory drugs (i.e. indomethacin) used as painkillers are accompanied with serious adverse effects in upper gastrointestinal tract and small intestine, which mainly cause peptic ulcers. Therefore, this research aimed to investigate the effects of *Spirulina platensis* (SP), golden kiwifruit flesh (KF) and its peel (KP) extracts individually or combined (SFP) against indomethacin-induced gastric ulcer in rats. The HPLC quantitative analysis revealed that chlorogenic, protocatechuic and caffeic acids were the predominant phenolic acids and catechin was the predominant flavonoid in SP, KF and KP, respectively. Experimental rats were then classified as GI (normal group); ulceration was induced in GII (positive group), GIII, GIV, GV, GVI, and GVII groups by a single oral administration of indomethacin (30 mg kg⁻¹ body weight). KF, KP, SP, and SFP extracts were orally administered at a dose of 30 mg kg⁻¹ bw as TPC equivalent to ulcerated rats groups GIII, GIV, GV, and GVI, respectively. Lansoprazole (30 mg kg⁻¹ bw as reference drug) was given to group GVII. After two weeks, ulcer index (UI), protection index (PI %), vitamin B₁₂, iron and hemoglobin (HB) levels were determined. Results indicated that intragastric administration of indomethacin induced linear hemorrhages and ulceration craters in the mucosal layer with a significant increase of UI, which was significantly attenuated by SP, KF, KP, and SFP extracts when compared with group GII. SP group recorded the highest PI (80.79%) when compared with Lansoprazole group (74.86%). Administration of indomethacin significantly reduced vit. B₁₂, iron and HB levels compared to GI. However, KF, KP, SP, and SFP extracts increased plasma vit. B₁₂ by 33, 26, 10 and 46%, respectively. Indeed, Lansoprazole did not significantly improve vit. B₁₂ level as observed in group GVII. In addition, iron and HB were significantly increased by the administration of SP and KF compared to GII group. All given extracts were markedly attenuated the serum levels of malondialdehyde, reduced glutathione, and superoxide dismutase. Thus, these data suggested that SP, KF, KP and SFP extracts have a gastroprotective potential against indomethacin-induced gastric ulceration and the antioxidative and anti-inflammatory properties are probable mechanisms.