

PHENOLIC COMPOUNDS OF FORMULATIONS USED FOR FUNCTIONAL DYSPEPSIA TARGET BITTER TASTE RECEPTORS AND STIMULATE MECHANISMS OF GASTRIC ACID SECRETION IN HUMAN Parietal cells in culture

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Poster

Oesophagus

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Herbal extracts with high polyphenol content stimulate gastric acid secretion in parietal cells via bitter taste receptor regulation, with *Imperatoria ostruthium* and *Juniperus communis* showing the strongest effects.

KEY POINTS

- Seven of nine tested herbal extracts stimulated proton secretion in human parietal HGT-1 cells in a concentration-dependent manner (1-300 µg/mL), with *Imperatoria ostruthium* and *Juniperus communis* demonstrating the strongest effects.
- Extracts with high polyphenol content (greater than 1500 µg/mL gallic acid equivalents) produced stronger stimulation of proton secretion compared to those with low polyphenol content ($R^2 = 0.77$; p less than 0.0001).
- Exposure to the herbal formulation regulated 16 of 25 bitter taste receptors (TAS2Rs), including TAS2R4 and TAS2R5 known to be activated by polyphenolic compounds, with individual extracts reproducing these regulations.
- The study used a commercially available liquid herb formulation for digestive discomfort tested on HGT-1 cells, which express all 25 TAS2Rs and elements necessary for gastric acid secretion signaling.
- This research may interest investigators studying mechanisms of herbal digestive remedies and the role of bitter taste receptors in gastric function.

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