

6-Gingerol enriched Pre-Operative Carbohydrate Drinks for Enhanced Recovery After Surgery



ERAS medical guidelines recommend clear carbohydrate drink 2-3 hr before surgery to reduce hospital stay and improve patients' well-being. BUT...



Nausea & Vomiting is still a problem!



Ginger

Thai National List of Essential Medicine improves digestion, bloating, & nausea/vomiting

Combined 2 techniques
ERAS Carbohydrate + Thai Herbal Meds

To enhance recovery & reduce nausea/vomiting



Microwave assisted extraction

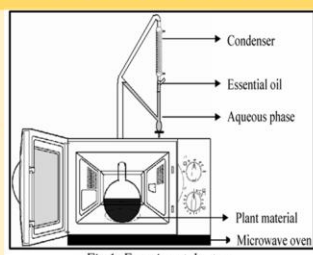


Fig.1: Experimental setup



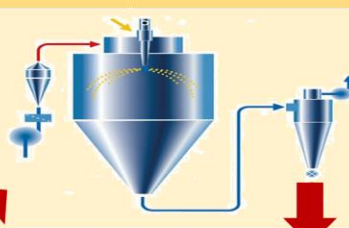
Polysaccharides



Crude ginger extract

Inclusion complex
(encapsulation)

Spray drying Process



Standardized ginger extract with
6-gingerol encapsulation

6-gingerol 7.83 mg/g standardized extract



Active content determination

6-gingerol enriched carbohydrate 55g/portion

Month	6-gingerol (mg/g)
0	0.86 ± 0.0008^a
3	0.85 ± 0.0089^b
6	0.85 ± 0.0028^b

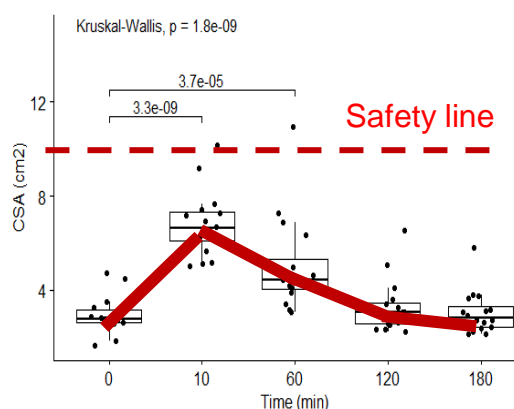
Safety study in healthy volunteers

Stomach diameter returned to baseline at 2 hr after consumption

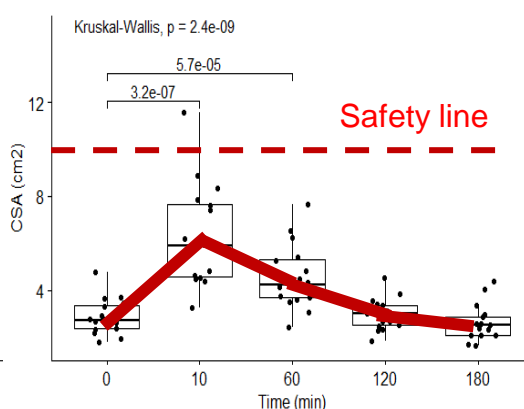
RCT in 60 patients with brain tumors

undergoing craniotomy

A: 400 mL Carbohydrate with Ginger Extract



B: 250 mL Carbohydrate with Ginger Extract



19
times

**85 % Reduction in
vomiting events**

3
times

$P < 0.001$

placebo

6-gingerol enriched
carbohydrate 55g



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