



# **Rice bran oil fortified with bioactive capsaicin: A nutraceutical designer food for health**

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## Rice Bran Oil (RBO)

- Source of  $\gamma$ -oryzanol
- **Anti-diabetic , anti-cancerous, hypocholesterolemic**
- Commercially enriched with Vitamin E (3.30-3.60 $\mu$ g/g) as synthetic preservative



## *Capsicum chinense* (Bhut Jolokia) GI (Nagaland, India)

- **Richest known source of capsaicin (2.2-6 %) in the world**
- Meets minimum criteria for commercial oleoresin extraction (**capsaicin  $\geq$  1%**).
- Anti-inflammatory, cardiovascular activity regulator, anti-cancer, anti-obesity, gastro-intestinal benefits, analgesic, etc.

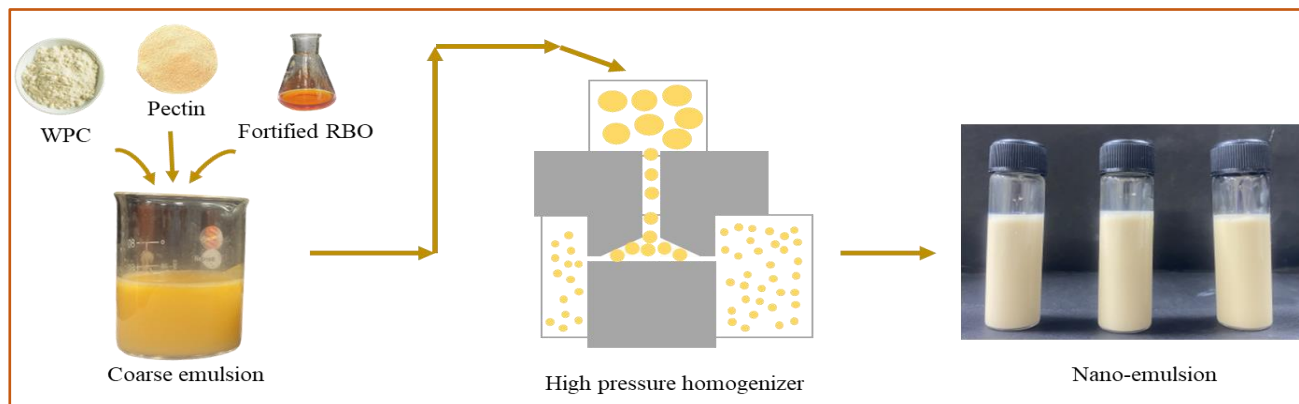


## Innovation:

“To harness bioactive lipophilic ingredient capsaicin from Bhut Jolokia into  $\gamma$ -oryzanol (GO) rich rice bran oil (RBO) for formulation of RBO fortified with capsaicin ”



Production of RBO fortified with Bhut Jolokia oleoresin



Production of nutraceutical rich nano-emulsion stabilized with pectin and whey protein concentrate

## Nutraceutical composition of fortified RBO

| Attributes                            | Values        |
|---------------------------------------|---------------|
| Capsaicin content (mg/ml)             | 201.37 ± 6.04 |
| γ-oryzanol (mg/g)                     | 9.01 ± 0.41   |
| Total phenolic content (mg GAE/100 g) | 410 ± 21.3    |
| Antioxidant activity (μmol TE/g)      | 24.59 ± 0.86  |
| SFA (%)                               | 20.83 ± 0.21  |
| MUFA (%)                              | 44.22 ± 0.38  |
| PUFA (%)                              | 34.95 ± 0.11  |

## Live developments

- Analysis for **biological activity** (anti-adipogenic, anti-inflammatory, gut hormone release, mucin synthesis/release) are ongoing at **NABI, CdG (India)**

## Utilization

- Special **cooking oil** for consumers with special dietary requirements (e.g. **obesity, cancer, diabetic, and muscular dystrophy patients**).
- Incorporated as a **super nutraceutical ingredient** in different food matrix.