

## Formulation of liquid frying margarine and studying its chemical and physical properties

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**Objective:** Formulation and preparation liquid frying margarine and measurement some chemical and physical indexes.

**Methodology:** 12 types of margarines formulated with 4 different types of oil phase (palm super olein, partially hydrogenated Canola oil, 50:50 mixture of palm super olein and partially hydrogenated canola oil , liquid canola) and 3 different moisture (16-8-4%) level, some tests were conducted to observe some properties.

**Result and conclusion:** In this formula were used in water phase , citric acid (for achieving to pH:5), sorbic acid(10-30ppm) and salt. In preparation of oil phase ; 1:5 oil warmed to 70°C and frying margarine emulsifier (0.4%), liquid margarine emulsifier(2%), sorbitan tri steared (0.1-0.2%) and dimethyl silicon (0.5-0.7%) were added to mixture. Remaining oil (4:5) warmed to 55°C and then  $\beta$ -carotene (0.008%) and ghee flavor (0.04%) was added to it. About (45-50°C) 2 oil phases and water phase mixed. Then emulsion was kept in ice and salt dish to achieve to 5°C, mixed well during 2 h. Polar compound percent and acidity in produced margarine were directly affected the oil phase stability, and did not have related to moisture percent. Margarine of palm super olein base exhibited the lowest acidity and total polar compounds (polar: 0.386, acidity: 0.05%). The highest amount was related to margarines with canola oil. (polar:0.796, acidity:0.14%). Smoke point and viscosity were related to oil phase and moisture percent. Margarine with higher saturated fatty acids and higher moisture exhibited higher viscosity (the highest viscosity was related to margarine in base of palm super olein and 16% moisture). However, margarine with least moisture and high stability exhibited the highest smoke point ( margarine with palm super olein and 4% moisture:210°C and margarine in base of canola oil and 16% moisture:195°C).