

OMEGA-3 FORTIFIED YOGURT AND ITS INFLUENCE ON PLASMA LIPID PROFILE IN AN ANIMAL MODEL

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Background

Regular intake of omega-3 fatty acids (O-3FAs) improves human health helping to reduce chronic non-communicable diseases among others. Dairy products are a complex mixture of various nutrients and other components that together form the "food matrix". Yogurt is a semi-solid matrix with oxidative stability, though it is a suitable vehicle for transporting polyunsaturated fatty acids. Enriched O-3FAs yogurts are a value-added strategy to ingest them. The objective was to analyze the effect of O-3FAs yogurt intake on plasma fatty acids profile of mice

Objective

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Methods

Group (I): were fed the basal diet (control).

Group (II): were fed the basal diet added with plain yogurt

Group (III): were fed the basal diet added with fortified ω -3 PUFA yogurts (250 mg/200 g yogurt)

Yoghurt consumption such that they received 12 mg O-3FAs /mouse/day

Experimental feeding was continued for 4 weeks and provided with ad libitum access to the diet and water.

After 28 days, blood was collected; plasma was obtained and stored at -80 °C. The plasma fatty acid profile was determined by gas chromatography (GC)

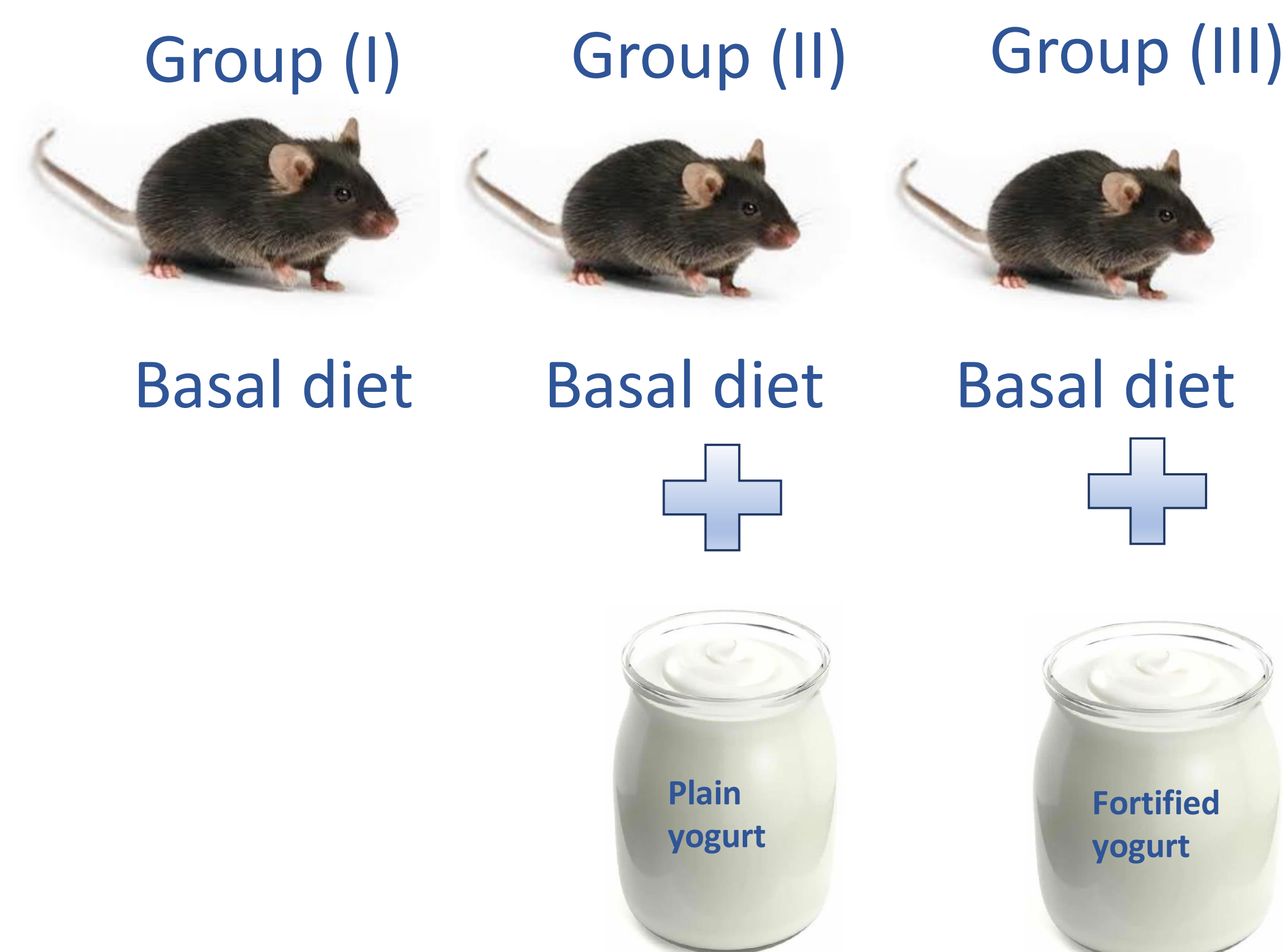
Statistical analysis used ANOVA. Result (% Area) were expressed as Mean \pm SE.

All the experiments were carried out as approved by Ethical Committee

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Experimental model – Mice C57BL/6

Four-week-old mice were divided into 3 groups



RESULT

Table: Fatty acid profile (% Area) in plasma

GROUP	Oleic Acid (18:1 n-9)	EPA (20:5 n-3)	DHA (C22:6 n-3)
I	17.94 \pm 0.64b	0.46 \pm 0.06a	3,43 \pm 0,37
II	16.60 \pm 0.46b	0.62 \pm 0.06ab	3,74 \pm 0,22
III	14.69 \pm 0.97a ↓	0.74 \pm 0.02b ↑	4,20 \pm 0,15

The amounts of EPA added to yogurt produced and increase in plasma levels of this fatty acid, which was significant in group III compared to control.

Means with no letters (a,b) in common for each fatty acid, are significantly different ($p < 0,05$).

There were not statistically significant differences for the rest of the fatty acids evaluated.

CONCLUSION

In the context of a balanced diet, the fortified yogurt is a good vehicle to improve plasma lipids profile by increasing EPA which has beneficial effects such as anti-atherosclerotic and anti-inflammatory properties.

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