

## **Leaky Gut and Post-Prandial, Redox and Inflammatory Markers in HRTreated Menopausal Females: Benefits by a Pharma-Grade Fermented Papaya Preparation (FPP-ORI)**

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### **Abstract**

The aim of the present study was to test an evidence-based functional food (FPP-ORI, Osato Research Institute, Gifu, Japan) on redox and immune system modulatory efficiency together with gut permeability in HRT-treated postmenopause women. The study population consisted of 74 postmenopausal women who were on hormone replacement therapy (HRT) divided in two groups, matched as for age, duration of menopause diagnosis, BMI, dietary intake and physical activity and supplemented as follows: Group A unsupplemented HRT-treated women and group B HRT-treated women supplemented with FPP 4.5 g 2 times a day. Treatments were maintained for 6 months. A further Group C consisted of 25 untreated menopausal women who served as control. A high-fat test meal was given to both groups as breakfast each observation day (entry, at 3rd and 6th months) afterwards. At these timing blood samples were taken for the following tests: erythrocytes redox parameters, oxidized low-density lipoproteins/ 2-

## Materials and Methods

The FPP was obtained from *Carica papaya* L. cultivated in selected non-GMO organically-treated Hawaiian crops undergoing a 10 months patented yeast fermentation process in Japan with pharmaceutical grade batch-to-batch control also by Electron Spin Resonance at the Osato Research Institute (Gifu, Japan). The final composition of FPP per 100 g is as follows: 90.7 mg carbohydrates, 14 µg copper, 6 mg lysine, 13 mg valine, 37 mg glutamic acid, 2.5 mg calcium, 11 mg glycine, 17 µg vitamin B6, 8 mg proline, 27 mg aspartic acid, 5 mg histidine, 18 mg leucine, 16.9 mg potassium, 11 mg serine, 9 mg tyrosine, 11 mg phenylalanine, 9 mg isoleucine, 8 mg treonine, 5 mg methionine, 16 mg arginine, 4.6 mg magnesium, 240 µg niacin, 75 µg zinc, 2 µg folic acid and 2 mg tryptophan

## Conclusion

Taken overall and given the confirmed high safety profile of FPP even in elderly, the above evidence-based nutraceutical intervention may provide a valid opportunity within a wider health-promoting and disease-preventing strategy in menopausal women.

