

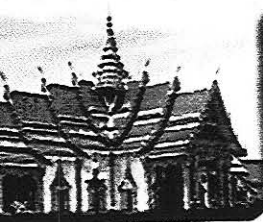
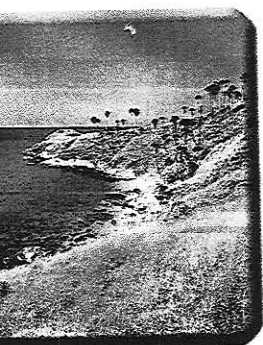
10th

World Congress on Clinical Nutrition

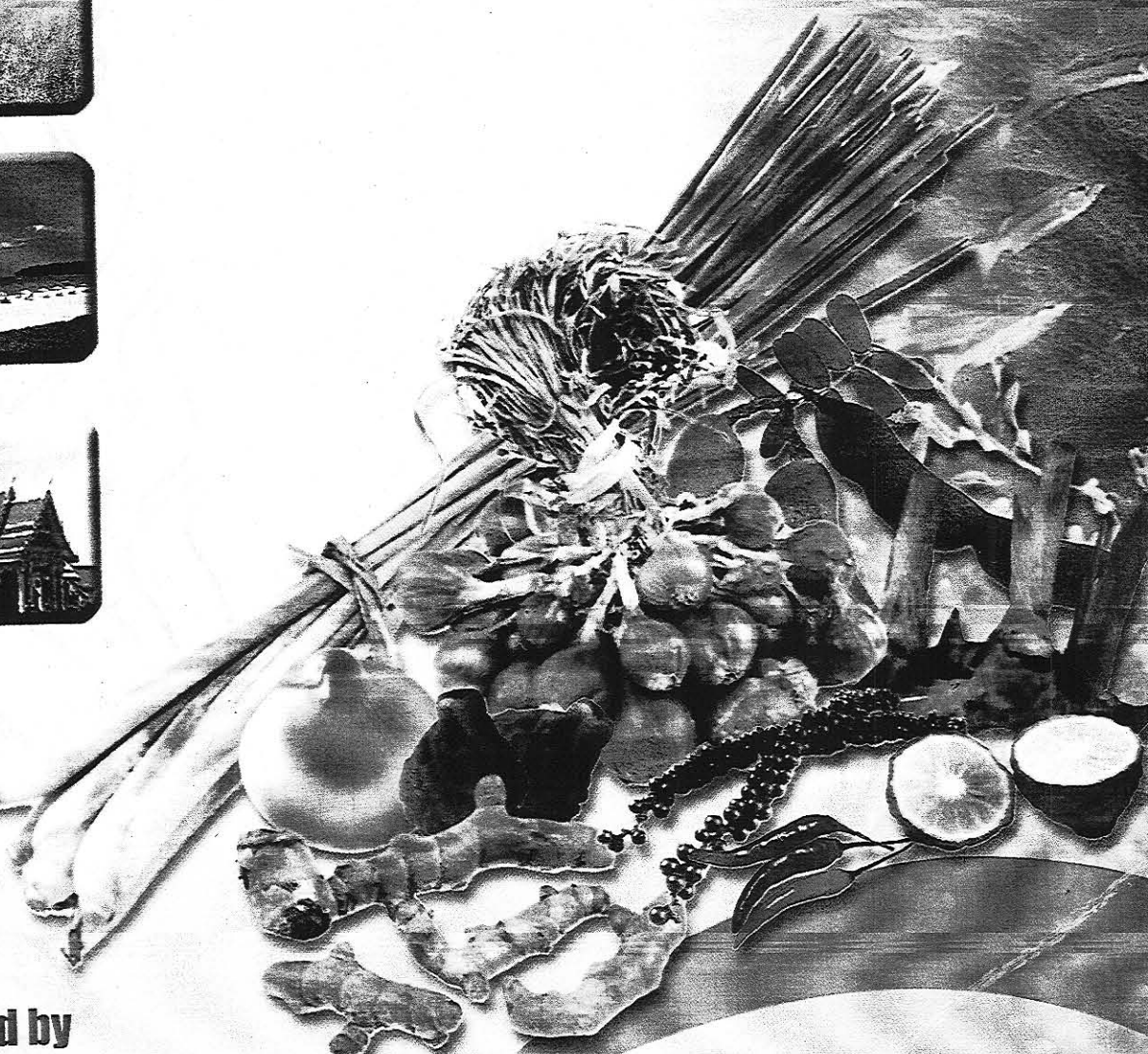
ion in the Next Decade: Nutraceutical/Functional Food: Product Performance in Health, Disease and Safety

PROGRAMS AND ABSTRACTS

November 30 - December 3, 2004
Phuket, Thailand



Organized by



S6.6. Effect of extrusion conditions on conjugated linoleic acid of corn extrudates

Patcharin Pakdeechanuan, Kanok-Orn Intarapichet and Sunanta Tongta
School of Food Technology, Institute of Agricultural Technology
Suranaree University of Technology, Thailand

Conjugated linoleic acid (CLA) is a potent anticarcinogen and has been shown to have antiatherogenic and antidiabetic effects as well as to enhance immune function and reduce body fat in animal models. Thermal and mechanical energies of extrusion could modulate alteration of CLA in corn extrudates, which could be determined by GC and HPLC analysis. The content and configuration of CLA were investigated at extrusion temperature of 150-190°C and torques 50-70 %. Cornmeal mixed with 2% of sunflower oil or 2% of CLA oil, which was synthesized by alkaline isomerization method were used as starting feed. Results showed that the formation of CLA during extrusion depended on product temperatures and torques. The extrusion at product temperature of 150°C affected an increase in CLA contents, from 1.17 mg/g of oil in feeds to 7.75 mg/g of oil in corn extrudates. Further increasing of product temperature to 190°C showed significant decrease ($p < 0.05$) in total CLA contents due to the hydrogenation. Alteration of CLA geometrical configuration was observed at higher extrusion temperature. Trans,trans CLA significantly increased ($p < 0.05$) from 10.19% in feed to 11.88% at the extrusion condition of 190°C and 70 % torque. The highest expansion of extrudate was founded at the product temperature of 150°C and 70 % torque. At this extrusion condition also showed a maximum total CLA and a minimum trans,trans-CLA.