

## ABSTRACT

An Evaluation of the Chemical and Sensory  
Characteristics of Tempeh From  
Pigeon Pea And Soybean

Salma Amina Ali

Samples of tempeh (a fermented food product) were prepared from (i) soybean (Glycine max), (ii) locally grown pigeon pea (Cajanas cajan) and (iii) mixtures of these two types of legumes. The legumes were soaked in tap water for 16 hours at 29°C. After soaking, the legumes were drained and dehulled by hand. The dehulled legumes were partially cooked in boiling water, 20 minutes for the pigeon peas and 30 minutes for the soybeans. The cooked legumes were drained, cooled and inoculated with the mould Rhizopus oligosporus ATCC 22959. The inoculated legumes were packed in perforated plastic bags and were then incubated at 30 °C for 20 hours to effect fermentation.

The tempeh samples had a pure white colour. All were firm and compact but became softer as the pigeon pea content in them increased. Samples containing pigeon pea had a tangy flavour compared to the bland tasting sample made of pure soybean. As the proportions of pigeon pea and soybean became equal, the tangy flavour became stronger and sharper.

The protein and fat contents of the samples increased as the soybean content increased; however, the carbohydrate content had decreased. The samples had lower amounts of crude fibre and ash than those of the unprocessed legumes. The total soluble solids content of the samples were higher than those of the unfermented legumes.

An acceptability test was conducted, the results of which indicated favourable responses by the judges towards the tempeh samples. However, their preferences in the samples inclined towards those containing pure soybean or pure pigeon pea.

It was concluded that tempeh, in particular that of the pure pigeon pea type, possess potential for development into a local commercial product, which would be highly nutritional.