

ABSTRACT

Tempe is a traditional fermented soybean food of Indonesia. It is rich much of its good flavor, sliceable meat-like texture, and excellent nutritional properties due to the process of fermentation. Consumption of Tempe is usually in the form of slices which have been seasoned and deep fat fried in oil. The product is especially suitable for nourishment of lactating and pregnant mothers, and malnourished children.

Homo fermentation is involved and it is a versatile process. Therefore, the aim of the study was to make Tempe by using versatility of the fermentation, that is the making of Tempe by substituting okara (soy milk residue) which is the by-product of the tofu industries for soybean substrate.

The two main steps involved in okara Tempe manufacturing are preparation of okara as a key ingredient, to produce good quality of Tempe and its fermentation. A two stage of fermentation process is involved in Tempe manufacturing. The product serves as a major source of high quality protein, calories, vitamins and dietary fiber in the diet. *Rhizopus oligosporus* is the principle mold species that carries out the homo fermentation process.

The temperature, moisture content and acidity of the okara substrate are critical if high quality Tempe is to be obtained. The moisture content of okara is in the range of 42-47%, acidity should be in the range of pH 4.5-5.5. A temperature of 30^o-37^oC over a one to two day period results in Tempe with optimal sensory characteristics. The fermenting okara should be covered to retard moisture losses however, diffusion of air is essential to promote proper growth and metabolic activity of *R. oligosporus*. It has been found that perforated polyethylene bags are the most suitable package for inoculated okara substrate. Tempeh should be eaten within one day of its preparation. Otherwise, the release of ammonia gas as a result of break down of mycelia and okara proteins causes the product to be inedible.

Variations of temperature, pH, acid value and formal values are important measurements which are usually used as a criteria of Tempe analysis All of these

measurements are intended to expose the mold activities during the second stage of okara Tempe fermentation.

Okara Tempe is an ideal food for use in developing countries as a source of tasty, inexpensive high-quality protein and its commercial production requires only the simplest, low-level technology.

During the study, it was found that there was no post fecal contamination in the product. Sensory evaluation proved that there is no significance different of consumer acceptability of the product when comparing with Tempe made from soybean that is the already existing product.