

## Potensi *rhizopus microsporus* v. Tiegh. UICC 520 dan UICC 521 dalam melakukan fermentasi tempe dan biotransformasi isoflavon

Zakiatulyaqin, author

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### Abstrak

Inoculum for making tempe is usually made from the mould *Rhizopus oryzae* or *Rhizopus oligosporus*. Large scale use of an inoculum from one source only (LKN-LIPI) might threaten the biodiversity of microorganisms in traditionally made inoculum. The potential use of other *Rhizopus* moulds as inoculum for tempe production should be examined. *Rh. microsporus* var. *rhizopodiformis* UICC 520 isolated from Hibiscus from Manado and *Rh. microsporus* var. *chinensis* UICC 521 isolated from tempe from Aceh were examined for their potentials to produce tempe.

*Rhizopus* has also been known to be able to transform antioxidants such as isoflavone in tempe. The potential of *Rhizopus microsporus* v. Tiegh. var. *chinensis* (Saito) UICC 521 to transform glucoside isoflavones in soybean tempe has been evaluated.

The results showed that *Rh. microsporus* var. *rhizopodiformis* UICC 520 has little potential as a tempe inoculum. *Rh. microsporus* var. *chinensis* UICC 521, however, is very potential as an inoculum to produce good tempe and produces abundant spores ( $(3-10) \times 10^6$  cell/ml) on rice substrate.

Two types of aglycon isoflavone, daidzein and genistein, were detected by TLC separation. The total isoflavone concentration during fermentation period of 24, 48, 72 hours was determined using HPLC. At 24 hours the concentration was 0.142 mg/g tempe, while at 48 and 72 hours the concentration were 0.181 and 0.135 mg/g tempe, respectively. The highest total isoflavone concentration was detected at 48 hours fermentation period. Hence, there was an increase of aglycon isoflavones up to 6000% after transformation of isoflavones in soybean by *Rh. microsporus* var. *chinensis* UICC 521 when compared to the initial concentration before transformation.