

## INTISARI/ABSTRAK

Najis *mughallazah* adalah salah satu najis pada kepercayaan umat Muslim yang tergolong najis berat, dimana menyucikannya menggunakan basuhan air sebanyak tujuh kali dan tanah. Penggunaan bentonit dalam sabun dapat menjadi alternatif karena kepraktisannya. Formulasi sabun bentonit menggunakan bahan baku kombinasi lemak sapi dan minyak kelapa. Kedua komponen tersebut memiliki komposisi asam lemak yang berbeda signifikan sehingga mempengaruhi sifat fisika-kimia pada sabun. Penelitian ini bertujuan untuk mendapatkan formula optimum sabun bentonit dengan bahan baku lemak sapi dan minyak kelapa.

Pada penelitian ini pencarian formula optimum dilakukan dengan metode *simplex lattice design* (SLD), dimana dibuat lima formula dengan kombinasi lemak sapi dan minyak kelapa yang berbeda. Parameter penilaian sabun batang mencakup organoleptis, daya dan stabilitas busa, pH, kadar air, total lemak, bahan tak larut etanol, asam lemak bebas dan lemak tak tersabunkan. Formula optimum sabun bentonit didapatkan dengan kombinasi 3.40167 gram minyak kelapa dan 26.5983 gram lemak sapi. Formula optimum dilakukan analisis *one sample T-test* dan didapatkan pada respon stabilitas busa, kadar air, dan lemak tak tersabunkan tidak memiliki perbedaan signifikan ( $p > 0.05$ ). Pada respon nilai pH, kadar air, bahan tak larut etanol, dan asam lemak bebas memenuhi syarat SNI 3532:2021. Hasil penerimaan yang dilakukan menunjukkan bahwa sabun cukup dapat diterima masyarakat.

**Kata Kunci:** lemak sapi, minyak kelapa, optimasi

## ABSTRACT

*Najis mughallazah* is one of the type of *najis* in Muslim beliefs which is classified as severe *najis*, to purify it uses seven times of cleansing using water and soil. The use of bentonite in soap can be an alternative because of its practicality. The formulation of bentonite soap uses a combination of beef tallow and coconut oil as raw materials. The two components have significantly different fatty acid compositions that affect the physico-chemical properties of the soap. This study aims to obtain the optimum formula for bentonite soap with beef tallow and coconut oil as raw materials.

In this study, the search for the optimum formula was carried out using the simplex lattice design (SLD) method, where five formulas were made with different combinations of beef tallow and coconut oil. Parameters for evaluating bar soap include organoleptic, foam strength and stability, pH, water content, total fat, ethanol insoluble material, free fatty acids and unsaponifiable fat. The optimum formula for bentonite soap was obtained with a combination of 3.40167 grams of coconut oil and 26.5983 grams of beef tallow. The optimum formula was analyzed by one sample T-test and found that the response of foam stability, water content, and unsaponifiable fat had no significant difference ( $p > 0.05$ ). In response to the pH value, water content, ethanol insoluble material, and free fatty acids meet the requirements of SNI 3532:2021. The results of the acceptance carried out show that soap is quite acceptable to the community.

**Keyword:** beef tallow, coconut oil, optimation