

**PENGARUH GERMINASI DAN FERMENTASI TERHADAP
KANDUNGAN ASAM FITAT DAN ASAM SIANIDA PADA KACANG
KORO PEDANG (*Canavalia ensiformis*)**

SKRIPSI

Diajukan untuk memenuhi sebagian dari syarat untuk memperoleh gelar Sarjana
Sains di Bidang Kimia



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2024**

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Sebuah skripsi yang diajukan untuk memenuhi salah satu syarat untuk memperoleh gelar Sarjana Sains (S.Si.) pada Program Studi Kimia di Fakultas Pendidikan Matematika dan Ilmu Pengetahuan Alam Universitas Pendidikan Indonesia

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PERNYATAAN

Dengan ini, saya menyatakan bahwa skripsi yang berjudul "**Pengaruh Germinasi dan Fermentasi terhadap Kandungan Asam Fitat dan Asam Sianida pada Kacang Koro Pedang (*Canavalia ensiformis*)**" beserta seluruh isinya adalah hasil karya saya sendiri. Saya menjamin bahwa tidak ada pengutipan atau penjiplakan yang tidak sesuai dengan etika keilmuan yang diakui dalam masyarakat akademik. Saya bersedia menerima segala konsekuensi atau sanksi jika di kemudian hari ditemukan pelanggaran terhadap etika keilmuan atau jika ada klaim dari pihak lain mengenai keaslian karya ini.

Bandung, Agustus 2024

Yang membuat pernyataan,



Zilva Karimah Azahra

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ABSTRAK

Stunting merupakan kondisi ketika seorang anak tak tumbuh sesuai dengan tinggi badan normal untuk seusianya. Diketahui kacang koro pedang (*Canavalia ensiformis*) merupakan pangan sumber nutrisi terutama protein yang berpotensi digunakan sebagai pangan untuk mencegah *stunting*. Akan tetapi kacang ini memiliki kandungan antinutrisi seperti asam fitat dan asam sianida tinggi yang dapat mengurangi ketersediaan nutrisi di dalamnya. Penelitian ini bertujuan untuk mengetahui pengaruh germinasi, fermentasi, dan kombinasi germinasi-fermentasi terhadap kadar asam fitat dan asam sianida pada koro pedang. Terhadap kacang koro pedang dilakukan germinasi 24 jam dan 48 jam (G₂₄F₀ dan G₄₈F₀), fermentasi 48 jam tanpa germinasi (G₀F₄₈), dan kombinasi keduanya yaitu germinasi 24 jam dan fermentasi 48 jam (G₂₄F₄₈), serta germinasi 48 jam dan fermentasi 48 jam (G₄₈F₄₈). Uji spektrofotometri UV-Vis digunakan dalam menganalisis kadar asam fitat (pereaksi Wade) dan asam sianida (pereaksi alkali pikrat). Hasil penelitian menunjukkan bahwa germinasi, fermentasi, dan kombinasi keduanya berpengaruh nyata ($p < 0,05$) terhadap penurunan kadar asam fitat dan asam sianida pada koro pedang. Penurunan kadar asam fitat dan asam sianida berdasarkan uji Duncan dinyatakan berbeda secara signifikan pada seluruh perlakuan dengan persentase penurunan asam fitat dan asam sianida terbesar dicapai pada perlakuan kombinasi germinasi 48 jam dan fermentasi 48 jam dengan penurunan secara berturut-turut mencapai 77,93% dan 81,96%. Hasil penelitian juga menunjukkan bahwa durasi waktu germinasi mempengaruhi persentase penurunan kadar asam fitat dan asam sianida pada koro pedang. Durasi germinasi yang lebih lama mampu menurunkan kadar asam fitat dan asam sianida lebih besar baik pada perlakuan germinasi maupun kombinasi germinasi dan fermentasi.

Kata Kunci: Germinasi, fermentasi, asam fitat, asam sianida, antinutrisi, *stunting*, dan kacang koro pedang (*Canavalia ensiformis*)

ABSTRACT

*Stunting is a condition when a child does not grow according to normal height for his/her age. Getting to know the jack bean (*Canavalia ensiformis*) is a food source of nutrition, especially protein, which has the potential to be used as food to prevent stunting. However, this bean has a high antinutrient content such as phytic acid and cyanide acid which can reduce the availability of nutrients in it. This study aims to determine the effect of germination, fermentation, and a combination of germination-fermentation on the levels of phytic acid and cyanide acid in jack bean. The jack bean was germinated for 24 hours and 48 hours ($G_{24}F_0$ and $G_{48}F_0$), fermented for 48 hours without germination (G_0F_{48}), and a combination of both, namely 24-hour germination and 48-hour fermentation ($G_{24}F_{48}$), and 48-hour germination and 48-hour fermentation ($G_{48}F_{48}$). UV-Vis spectrophotometry test was used to analyze the levels of phytic acid (Wade's reagent) and cyanide acid (alkali picrate reagent). The results showed that germination, fermentation, and a combination of both had a significant effect ($p < 0.05$) on reducing the levels of phytic acid and cyanide acid in jack bean. The reduction in the levels of phytic acid and cyanide acid based on the Duncan test was stated to be significantly different in all treatments with the largest percentage reduction in phytic acid and cyanide acid achieved in the combination treatment of 48-hour germination and 48-hour fermentation with a decrease reaching 77.93% and 81.96% respectively. The results also showed that the duration of germination time affected the percentage reduction in the levels of phytic acid and cyanide acid in jack bean. A longer germination duration was able to reduce the levels of phytic acid and cyanide acid more both in the germination treatment and the combination of germination and fermentation.*

Keywords: *Germination, fermentation, phytic acid, cyanide acid, antinutrients, stunting, and jack bean (*Canavalia ensiformis*)*

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