

ABSTRAK

Penelitian ini bertujuan untuk mengetahui pengaruh substitusi tepung kedelai dengan tepung Lemna dalam pakan terhadap kandungan nutrisi, daya apung, *water stability*, tingkat kekerasan, dan *bulk density* pakan ikan. Penelitian dilakukan dengan empat perlakuan dosis substitusi yaitu P0 (0% tanpa substitusi tepung Lemna) sebagai kontrol, P1 (substitusi tepung kedelai dengan tepung Lemna sebanyak 5%), P2 (substitusi tepung kedelai dengan tepung Lemna sebanyak 10%), dan P3 (substitusi tepung kedelai dengan tepung Lemna sebanyak 15%) dengan 3 ulangan tiap perlakuan serta pakan komersial sebagai pakan pembanding. Pakan dengan substitusi tepung kedelai dengan tepung Lemna berpengaruh nyata ($P < 0,05$) terhadap kadar air dan kadar abu, namun tidak berpengaruh secara nyata ($P > 0,05$) terhadap kadar lemak dan protein. Substitusi tepung kedelai dengan tepung Lemna memberikan pengaruh yang berbeda nyata ($P < 0,05$) terhadap *water stability*, tingkat kekerasan pakan dan *bulk density* pada dosis 5% substitusi tepung Lemna, namun tidak berpengaruh secara nyata ($P > 0,05$) terhadap daya apung pakan. Kandungan nutrisi pakan perlakuan yaitu protein berkisar antara 29,67-30,33%, lemak berkisar antara 11,12-11,58%, abu berkisar antara 22,11-23,12%, air berkisar antara 8,15-10,39%, kadar karbohidrat berkisar antara 25,89%-27,35% dan energi pakan berkisar antara 261,22-266,05 kkal/g pakan. *Water stability* tertinggi yaitu terdapat pada perlakuan substitusi tepung kedelai dengan tepung Lemna 5% yaitu sebesar $128,21 \pm 5,77\%$. Daya apung tertinggi dihasilkan oleh pakan dengan perlakuan tanpa substitusi tepung Lemna 0% yaitu sebesar $9,00 \pm 1,54$ detik. Tingkat kekerasan pakan terbaik dihasilkan oleh pakan perlakuan substitusi tepung kedelai dengan tepung Lemna 5% yaitu sebesar $619,63 \pm 111,11$ N/m². *Bulk density* terbaik dihasilkan oleh pakan dengan perlakuan substitusi tepung kedelai dengan tepung Lemna 5% yaitu sebesar $588,74 \pm 24,05$ g/l. Dengan karakteristik tersebut, formulasi pakan ini cocok digunakan sebagai pakan ikan Nila.

Kata kunci : *Bulk density*, daya apung, tepung Lemna, tingkat kekerasan pakan, *water stability*.

ABSTRACT

This study aims to determine the effect of substitution of soy meal with Lemna meal in feed on nutrient content, buoyancy, water stability, hardness level, and bulk density of fish feed. The study was carried out with four treatment substitution doses namely P0 (0% without substitution of Lemna meal) as a control, P1 (substitution of soybean meal with Lemna meal as much as 5%), P2 (substitution of soy meal with Lemna meal as much as 10%), and P3 (substitution 15% soy meal with Lemna meal) with 3 replications of each treatment and commercial feed as a comparison feed. Feed with substitution of soy meal with Lemna meal had a significant effect ($P < 0,05$) on water content and ash content, but it did not significantly influence ($P > 0,05$) on fat and protein content. The substitution of soy meal with Lemna meal had a significantly different effect ($P < 0,05$) on water stability, the level of hardness of feed and bulk density at the 5% dose substitution of Lemna meal, however, it did not significantly influence ($P > 0,05$) on feed buoyancy. The nutrient content of the treatment, namely protein, ranged from 29,67-30,33%, fat ranged from 11,12-11,58%, ash ranged from 22,11-23,12%, water ranged from 8,15-10,39%, carbohydrate levels ranged from 25.89% -27.35% and feed energy ranged from 261,22-266,05 kcal/g feed. The highest stability was found in the substitution treatment of soy meal with 5% Lemna meal which was equal to $128,21 \pm 5,77\%$. The highest buoyancy produced by feed with treatment without substitution of 0% Lemna meal is equal to $9,00 \pm 1,54$ seconds. The best level of hardness of feed was produced by feed substitution of soybean meal with 5% Lemna meal, amounting to $619,63 \pm 111,11 \text{ N/m}^2$. The best bulk density is produced by feed with the substitution of soybean meal with 5% Lemna meal which is equal to $588,74 \pm 24,05 \text{ g/l}$. With these characteristics, this feed formulation is suitable for use as tilapia feed.

Keywords: Bulk density, flotation test, Lemna meal, hardness feed, water stability.