

## The Use of Palm Kernel Cake in Ration and Its Influence on VFA, NH<sub>3</sub> and pH Rumen Fluid of Goat

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**Abstract :** Background: The main problem in the development of livestock in Indonesia is feed both in terms of quality and quantity. On the other hand, conventional feed ingredients are expensive and difficult to obtain. Therefore, it is necessary to find alternative feed ingredients that have good quality, potential, and low cost. Feed ingredients that meet the above requirements are by-products of the palm oil industry, namely palm kernel cake (PKC). This study aims to obtain the best PKC composition for Etawa goat concentrate ration. Material and Methode : This research consists of 2 stages. Stage I is invitro study using Tilley and Terry method. The study used a Completely Randomized Design (CRD) with 4 treatments of rations and 4 replications. The treatment is the composition of the use of palm kernel cake (PKC) in the ration, namely, A). 10%, B). 20%, C). 30%, D). 40%. Other feed ingredients are corn, rice bran, tofu waste and minerals. The measured variables are the characteristics of the rumen fluid (pH, VFA and NH<sub>3</sub>). Stage II was done using the best ration of stage I (Ration C), followed by testing the use of Tithonia (*Thitonia difersifolia*) and agricultural waste of sweet potato leaves as a source of forage for livestock by in-vitro. The study used a Completely Randomized Design (CRD) with 3 treatments and 5 replications. The treatments were: Treatment A) Best Concentrate Ration Stage I + Titionia (*Thitonia difersifolia*), Treatment B) Best Concentrate Ration Stage I + Tithonia (*Thitonia difersifolia*) and Sweet potato Leaves, Treatment C) Best Concentrate Ration Stage I + Sweet potato leaves. The data obtained were analyzed using variance analysis while the differences between treatments were tested using the Duncant Multiple Range Test (DMRT) according to Steel and Torrie. Results of Stage II showed that the use of PKC in rations as concentrate feed combined with forage originating from Tithonia (*Thitonia difersifolia*) and sweet potato leaves produced pH, VFA and NH<sub>3</sub>-N which were still in normal conditions. The best treatment was obtained from diet B (P <0.05) with 6.9 pH, 116.29 mM VFA and 15mM NH<sub>3</sub>-N. Conclussion From the results of the study it can be concluded that PKC can be used as feed ingredients for dairy goat concentrate with a combination of forage from Tithonia (*Thitonia difersifolia*) and sweet potato leaves.

**Keywords :** palm oil by-product, palm kernel cake, concentrate, rumen fluid, Etawa goat

**Conference Title :** ICLAFR 2019 : International Conference on Livestock and Animal Feed Resources

**Conference Location :** Sydney, Australia

**Conference Dates :** March 28-29, 2019