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Utilization of Torula Yeast (Zymomonas mobilis) as Main/Reciprocal for Degradation of Municipal Organic Waste as Feed for Goats

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Abstract : The study was carried out to investigate the performance of Red Sokoto goats fed Municipal Oranic Wastes (MOW) subjected to two methods of in vivo degradation by Torula Yeast and Zymomonas mobilis. Two combination, Torula Yeast + Zymomonas mobilis (main degradation), and Zymomonas mobilis + Torula Yeast (Reciprocal degradation) were used to degrade MOW. Eighteen Red Sokoto goats of both sexes (9 males and 9 females) of ages between 6-8 were used for the study. The goats were randomly assigned into 3 treatments groups A, B and C respectively with 6 goats per treatment. The experiment was laid in a Completely Randomized Design and replicated 3 times. Treatment A groups were fed 30% Undegraded MOW base diet +concentrate mixture, Treatment B groups were fed 30% Main degraded MOW base diet +concentrate mixture, Treatment C groups were fed 30% Reciprocal degraded MOW base diet +concentrate mixture. The result of the daily weight gain was significantly ($P<0.05$) better than on the other Treatments. There was significant improvement ($P<0.05$) on the daily feed consumption in Treatment B than on the Treatments A and C. The feed conversion ratio revealed no significant ($P>0.05$) differences among the treatment groups but much better in the treatment B and C, the cost of feed consumed was much higher ($P>0.05$) in Treatment B followed by Treatment C, while Treatment A had the lowest. The cost/ kg weight gain that was recorded in Treatment A was better ($P<0.05$) than the Treatment B, followed by Treatment C, while the cost of production was high ($P<0.05$) in Treatment B than in other treatments. The gross profit was observed best ($P<0.05$) on the Treatment B, followed by Treatment C while Treatment A had the lowest. The net profit as noted in this study was much better ($P<0.05$) in Treatment B, and Treatment C, while the least was observed in Treatment A, where the return on investment was high in Treatments B and C, while Treatment A had the lowest.

Keywords : reciprocal, torula yeast, Zymomonas mobilis, organic waste
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