Theobromine Decreased by Anaerobic Lignocellulolytic Rumen Bacteria in Liquid Media Containing Rumen Fluid

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Cacao pod actually contends good nutrients to be used as cattle food to replace the forages. It contains coarse protein of 8% and energy of 50.8%. The usage of cacao pod as food is limited by the presence of anti-nutrient substance i.e., alkaloid that is called the obromin (3.7 – *dimethylxantine*) and this substance can have poisonous effect on the cattle. This will, in dog and rat, cause reproduction toxicity, particularly in testes organ. In pig, it will cause the delayed growth of uterus and bone hardening. Also, horse is also vulnerable to theobromin, especially the effect it has on liver and thyroid, as indicated by delayed growth, diarrhea and weak body. However, it is said that the ruminants are still able to consume theobromin in particular number without suffering toxic symptoms, i.e. 55 mg/kg of body weight for beef cattle and 15 mg/kg of body weight for sheep. Based on the ruminants' capacity in consuming theobromin compared to the non-ruminants, despite of its limited number, it is necessary to review the capacity of the rumen bacteria in bio-fermentation process that the consumption of cacao pod of the ruminants can be improved. These bacteria have also better capacity in degrading the coarse fiber, so that it is necessary to review the performance of the bacteria including its capacity in degrading alkaloid compound in pod cacao. The objective of the study was screening the lignocellulolyticrumen bacteria that can degrade theobromin. The results showed that the optimum in cubation time lignose lulolitik rumen bacteria is 24 hours. The seanaerobicbacteria can reduce the theobrominein liquid media containing rumen fluid by means of degradation from 92.07ppm to 68.05ppm with a time of ferment for three days at a temperature of 39^{o}C. Results of analysis of the obromine content in media containing rumen fluid fed lignose lulolitik rumen bacteria for 10 minutes showed no decline inlevels of the obromine from a given dose of 142.27and 117.62 ppm. This means no the obromine compound in the bodyof attachmentof bacteria during the degradation.The benefits of this study are: 1) providing deeper information regarding the performance of the lignocellulolytic rumen bacteria in degrading the alkaloid compound and lignocelluloses fiber and 2) it is expected that this study will bring about output product i.e. the quality cacao pod-based preserved feed as complete feed or cacao pod for replacing the forages that can be fed up to 50 of total feed and this is still in secure level

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