The Improving of Quality Nutrient and Detoxification of Mimosin Lamtoro Leaf Meal (*leucaena leucocephala*) that Fermented with *Bacillus* sp and *Trichoderma viride* and the Influence on the Productivity and Quality of Eggs Pitalah Duck

ABSTRACT

The aims of study to know the optimum fermentation conditions , to improve the quality of nutrition and its effect on the detoxification of mimosin fermentation products with *Bacillus* Sp and *Trichoderma viride* on the productivity and quality of duck eggs Pitalah. Research experiment was divided into four steps : The first step was isolation, selection and identification of cellulolitic bacteria from digestic gastrointestinal of Pitalah duck. The second step was determination of the optimum conditions for microbial growth and the best for media inoculums. The third step was determination optimum condition for lamtoro leaf meal and the activity cellulase and protease enzyme from *Bacillus laterosporus* and selluase enzyme from *Trichoderma viride* based on nutrient quality and quantity of these fermented products. And the forth step was the feeding trial on Pitalah ducks.

Results of the first step showed that these isolates were *Bacillus coagulans* and *Bacillus laterosporus* base on biochemical and morphological test. Based on the the higher sellulase activity and wider cleare zone *Bacillus laterosporus* was selected for the next. In the second step , the best growing time, pH and temperature were detected within 18 hours inculation, 6 and 37^0C for *Bacillus laterosporus* respectively. Rice brain was the best inoculums media compared to the other meals (corn, tapioca and lamtoro leaf meal) for and *Bacillus laterosporus* on the colony number 60,5 x 10^9 CFU/g. In the third step, optimum conditions of the fermentation of lamtoro leaf meal was at 6% dosage of inoculums, 24 hours of fermentation length , The highest activity protease enzyme was 2,682 Unit/ml and cellulase enzyme was18,576 Units/ml. Metabilism of Energy 2524,74 kcal/kg, N retention 68,99% and digestibility of crude fiber 57,91; reduction of mimosine 64, 89% and the increasing of B-carotene 96,91% for *Bacillus laterosporus*. The optimum conditions of the fermentation of lamtoro leaf meal was at 7% dosage of inoculums, 7 days of fermentation length , The highest activity cellulase enzyme was 7,619 Units/ml. Metabolism of Energy 2504,34 kcal/kg, N retention 68,77% and digestibility of crude fiber 58,62; reduction of mimosine 77, 48% and the increasing of B-carotene 68,96% For fermentation with *Trichoderma viride*.

The final step, the using of 20% lamtoro leaf meal fermentation products with *Bacillus laterosporus* (R3) and product mix *Bacillus laterosporus* and *Trichoderma viride* (R6) can generate income over feed costs higher (Rp. 717.39 and Rp. 732.80) and feed conversion (R6) 3, 58 better than the other rations.

In conclution, lamtoro leaf meal fermented with *Bacillus laterosporus* and *Trichoderma*, and a mix of both can be used up to the level of 20% in the ration of Pitalah ducks.

Key words : nutrient, detoxification, mimosine, productivity, quality and Pitalah duck