

1. INTRODUCTION

1.1 Importance of the study

In the broiler chickens the used antibiotics are harmful residues in meat, So there is will various health disorders. This is a serious problem in developed countries such as Europe, Asia and others. Use of Tamarind kernel powder as prebiotic and Lactobacillus reuteri as probiotic alternative that can replace the use of antibiotics.

1.1.1 Background

1. Broiler

Broiler is one of the animal protein sources. Broiler has good taste, soft and crunchy and cause the broiler meat to become popular meat consumption. As we know that the broiler meats contained many important nutrients for human nutrient requirement. The proteins is very important in our body , Many functions of protein in our body such as ; Involved in virtually all cell functions, Serve as enzymatic catalysts, Used as transport molecules (hemoglobin transports oxygen) and storage molecules (iron is stored in the liver as a complex with the protein ferritin), Used in movement (proteins are the major component of muscles) , Needed for mechanical support (skin and bone contain collagen-a fibrous protein), Mediate cell responses (rhodopsin is a protein in the eye which is used for vision), Antibody proteins are needed for immune protection control of growth and cell differentiation uses proteins (hormones).

Broiler production has become a lucrative business in the world, such as Indonesia. Data sources reports of (Directorate General of Animal Husbandry, Indonesia, 2011) reported The production of Broiler in Indonesia amounted to 955 ,756 tonnes per day, the number is increasing every year. As we know Indonesian

national populations about 240 million with average consumption of meat 4 gram /day. It's an opportunity business in the poultry section, thus providing for meat in Indonesia and the world with good quality meat.

As we know the farmers use a variety of drugs and antibiotics in broiler chicken farming, These will be residues in broiler meat. Residues in the both above ingredients are not good for human health. The impact of residues in the human is allergic, There are two main types of these reactions. Allergic reactions are when the drug negatively reacts to the user's immune system, and can result in congestion, dizziness, difficulty breathing, dry eyes, itchiness, nausea, photodermatitis, rapid pulse, rashes, and swelling. It's telling us how dangerous the residues of antibiotics in the body. So need substitute antibiotics and drugs within reduce the productivity. The use of prebiotics and probiotics are expected to give a good impact on broiler performance without the use of antibiotics and drugs, so there is no residue in chicken meat. Thus, it will produce broiler meat healthy and safe.

2. Tamarind Kernel Powder

Many factory food processing use tamarind for the ingredient, but not use the kernel, Such as in Thailand, Then tamarind kernel is cheap. The low cost of tamarind kernel is a benefit to using a prebiotics to replace antibiotics. Wherever the use of tamarind kernel powder as prebiotics will reduce waste and environmental pollution. Tamarind kernel powder is processed from the results found in the seed cake that is processed into powder form.

The used The tamarind kernel powder as a prebiotics will be replace the using of antibiotics in the raising of broilers. Tamarind kernel powder uses essentially in ruminants such as dairy cow and beef cattle. Nutritional content in tamarind kernel powder Crude protein was between 21:25 to 22:20%, Ranged from 8.9-17.10% carbohydrate, crude fiber was 2.33-3.82%, 6.94-11.43% crude lipid, in seed nuts and whole seeds respectively. Higher moisture contents were in the seed

nuts 19.90%. That's contents had a criteria of prebiotics. These criteria are 1) resistant to gastric acidity, to hydrolysis by mammalian enzymes, and to gastrointestinal absorption; 2) fermentation by intestinal microflora; and 3) selective stimulation of the growth and/or activity of those intestinal bacteria that contribute to health and well-being.

3. *Lactobacillus reuteri*

The *Lactobacillus reuteri* is a Gram-positive bacterium that naturally inhabits the gut of mammals and birds. But as the development of technology has been successfully propagated bacteria, It is used as a probiotic. The bacteria that are used as probiotic organisms have an ecological advantage in the gastro intestinal tract because they can multiply more efficiently than the antibiotic resistant forms that must expend extra energy for maintenance of the resistance factors rather than for reproduction. Use of probiotic bacteria that have a competitive advantage constitutes the basis of the competitive exclusion concept.

This study attempts to find out the effects of prebiotics and probiotics on the growth performance of broilers in terms of body weight gain, average daily gain, feed conversion ratio, mortality, and characteristic of villi.

1.1.2 Statement of the problems

Based on background, the problems of this study are as follows :

1. Do Tamarind Kernel Powder and *Lactobacillus reuteri* increase the productive performance of broiler?
2. Do Tamarind Kernel Powder and *Lactobacillus reuteri* increase the performance of villi ?
3. What is the best dose in used ?

1.1.3 Potential Benefit

The results of the study given information to the farmers , an alternative of antibiotics substitution, and potential to provide new innovation in the poultry nutrition.

1.2 Hypothesis

H0 : Tamarind Kernel Powder and *Lactobacillus reuteri* do not have significant effects on characteristics of villi and productive performance of broiler.

H1 : Tamarind Kernel Powder and *Lactobacillus reuteri* have significant effects on characteristics of villi and productive performance of broiler.

1.3 Key points of research

Productive performance, Villi