

Suttaya Maneepan 2014: Development of Dry Canine Food Product Fortified with Probiotic and Prebiotic. Master of Science (Agro-Industrial Product Development), Major Field: Agro-Industrial Product Development, Department of Product Development.

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This research was aimed to develop a dry canine food fortifying probiotics (*Bacillus subtilis*, *B. subtilis*) and prebiotics (Fructooligosaccharide, FOS and Mannanligosaccharide, MOS) for dogs in Thailand. From the result of surveying of dog's owner behavior and needs found that 90.63% of dog's owner are interested in dry canine food product fortifying probiotic and prebiotic. The five experimental formulas were designed by choosing from patent, several related research and commercial product and formulated using linear regression program. The chosen basic formula has nutrition which followed the regulation of Association of American Feed Control Officials (AAFCO). Basic formula consisted of 55.78% corn, 15.46% soybean meal, 11.75% broken rice, 6.94% palm oil, 0.5% salt, 5.75% fish meal, 3.00% corn gluten meal, 0.82% Dicalciumphosphate (P18). The production of dried dog food with gastrointestinal care by adding 3 levels, 0% (T1) 1% (T2) and 2% (T3) of prebiotic mixture (Fructoligosaccharide, FOS and Mannanligosaccharide, MOS). The result found that the addition of prebiotic mixture at 2% (T3) significantly increased bulk density of pellet, decreased hardness and diameter of pellet size ($p \leq 0.05$) when comparing with T1 and T2 formula. The formula T2 and T3 were added 1% of *B. subtilis* and brought the 3 formulas; control formula (T1), added *B. subtilis* and 1% prebiotic mixture (T2+C) and added *B. subtilis* and 2% prebiotic mixture (T3+C) to the experimental dogs for 21 days. The result found that the best formula was added *B. subtilis* and 1% prebiotic mixture (T2+C) because of the average physical feces score to better, average feces score had 4.29 and had significant ($p \leq 0.05$) when compared with the feces score of dog's that were fed control formula (T1). And also had an efficiency tend to increase in number of beneficial intestinal microorganisms such as *Bifidobacterium* spp. and *Lactobacillus* spp. and tend to decrease in amount of pathogenic microorganisms including *Escherichia coli* (*E.coli*) when compared the control formula (T1), no added prebiotic and probiotic.

Student's signature

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