UNIVERSITI TEKNOLOGI MARA

ECONOMICAL BIOMASS CAT LITTER USING EGGSHELL

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Thesis submitted in fulfillment

of the requirements for the degree of

Bachelor of Engineering (Hons.) Chemical

Faculty of Chemical Engineering

July 2019

ABSTRACT

Most commercially produced clay cat litters such as bentonite clay cat litter nowadays have raised issues to pet owners since they are toxic, non-biodegradable and have no natural odor controlling features. Thus, a study to develop litter from biomass was carried out to produce a cat litter from biomass that is biodegradable, scoopable, odor control and economical properties in order to overcome those problems. In this study, biomass materials; eggshell were processed into cat litter formulations and the results were compared. Firstly, the eggshell were cleaned properly and dried to remove moisture content and grinded to reduce their particle size. Then, the grinded eggshells were then mixed with xanthan gum as clumping agent, sodium bicarbonate as deodorizer, and glycerol as dust retardant to form mixtures of cat litter. For the purpose of enhancing the adsorptivity of the cat litter and flushability, hydrogel is added into cat litter formulations. Two types of hydrogel were used into this eggshell cat litter where a superabsorbent (carboxymethylcellulose/starch hydrogel) and a consecutive hydrogel biochar product were added into 2 different samples of eggshell cat litter. The samples were tested to compare with all of those raw materials in terms of their clumping activity, absorption capacity and dust formation.

ACKNOWLEDGEMENT

First and foremost, I would like to address my blessing to Almighty Allah for His blessing during the completion of my Bachelor Degree Research Project II. Then, I would like to gratitude to my research project supervisor Madam Nor Hayati Binti Talib for all her patience and guidance while giving me idea in order to complete the my research project II. Moreover, many thanks to Faculty of Chemical Engineering UiTM Shah Alam, which included all lecturers and staffs that involved in my research project. They spent their time for me in laboratory for me to complete my tasks. Furthermore, thank you to all of my family for all the supports that kept me motivated to keep me working on my project despite all the obstacles that I face. I will not certainly forget to all of my friends and colleagues that kept on sharing their knowledge and information. Last but not least, this appreciation are for everyone that involved either directly or indirectly in my research project because without those helps and supports I will not finish with what I gain today

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INTRODUCTION

1.1 Research Background

Currently many household considered to have pets at their house and cats are among the most pet being adopted around the world. According to American Pet Product Association (2014), statistics shows that around 96 million of cats have owner in the United States (US). Therefore, one of the main concerns for the pet owners is the disposal of their pet waste and covering any disturbing odors from the waste (U.S Patent 5 361 719, 1994). The percentage of have cats to poop in the house is high so the management of the cats need to be highly consider as they wanted the house clean from any mess. So, it is essential to use cat litter for cat's health and also the performance of the cat litter to do its job (APPA,2014). In order to manage this problems, each pet's owner must have a good choice to choose suitable cat litter as some of the cat litter make mess like dust, smell, and not adsorb well on the faeces and urine, then hygiene of the house and cat will be in jumble.

There are varies type of cat litter available in the market such as using clay, silica, natural base from biomass, and etc. Each of them have their specialities such as effective moisture and odour absorbance, biodegradable, dust-free as well as clumping ability. But at the same time each of them also have some disadvantages which affect the environment and also the safety of the cat and the owner. Most commercially produced clay cat litters such as the bentonite clay cat litter nowadays have raised issues to pet owners since they are non-biodegradable and have no natural odor controlling features. A study shows that bentonite clay used contains mica, which is carcinogenic and thus raise the safety issues of the cat as well as the owner who manage the litter (Kory and Hall, 1997). The cat and the owner may get affected by unintentionally consume the litter as it