The safety of biodegradable cat litter produced from mashed Leucaena (*Leucaena leucocephala*) stalk and bamboo residue soil: a case study

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Abstract

The product safety is one of the important properties of any pet care products that need to evaluate before production in a commercial scale. Mashed Leucaena (*Leucaena leucocephala*) stalk (*leu*) and bamboo residue soil (*soil*) were recently reported as the potential main material of cat litters to produce alternatives for expensive imported biodegradable cat litters. Responses of cats after contact "*leu*" cat litters and "*soil*" cat litters were evaluated compare to the commercial "*pine*" cat litters for safety in cat litter products. After treated with sterile procedure (15 min-autoclave and 5 min-air dry in 121°C), amount of fungus grown from produced cat litters significantly reduced from several folds of fungus densities (610 to 2.1×10^3 cfu/g at pre-sterile condition) to <100 cfu/g (post-sterile condition) which post-value did also not differ from <100 cfu/g obtained from freshly unpacked condition of all sterile-packed cat litters. All types of cat litter samples were also randomly collected from opened cat trays (at day 3, 5 and 7). Although fungus and yeast contamination were occasional found in "leu" and "soil" cat litters, the change of incidents were not significantly differ from "pine" cat litters. Thus, frequency empty cat tray after a week should be considered. During experience using all three types of cat litters for 14 days each, number of cats (9 in total) showed the allergy symptoms during day 8 - day 14 were not significant different among types of cat litters they used (Table 1). Thus, cat litter types were not the major factor resulted in the variation of allergy symptoms in this experiment. Both "leu" and "soil" cat litters could be safe to use as biodegradable cat litters. However, frequency of allergy symptoms and unique behaviors of some cats which may result from other causes during the 14 day trials also be reported for future discussions.

Table 1 Frequency of allergy symptoms indicated by the number of cats that show clinical signs during study and number of cats with normal signs in all 7 days from total of 9 tested cats. Some cats had several symptoms at a time. Between trials or types of cat litter (made of mashed Leucaena stem "*leu*", bamboo residual soil "*soil*" and commercial "*pine*"), a 7-days transition time was provided.

Symptoms	# with clinical signs: #with normal signs			Pearson Chi-Square	
	leu	*soil*	*pine*	Value	Asymp.Sig. (2-sided)
Cough	0:9	1:8	1:8	1.08	0.583
Conjunctivitis	0:9	1:8	0:9	2.08	0.354
Serous ocular discharge	1:8	1:8	0:9	1.08	0.583
Vomit	2:7	2:7	1:8	0.49	0.782
Itchy	0:9	1:8	0:9	2.08	0.354
Other allergic dermatitis	0:9	0:9	0:9	no test performed	
All symptoms	3:6	3:6	1:8	1.54	0.462

Recent Publications

1. Cohn LA (2011) Feline respiratory disease complex. Vet Clin Small Anim. 41: 1273-1289.
2. Dubey JP, Ferreira LR, Martins J, Jones JL (2011) Sporulation and survival of *Toxoplasma gondii* Oocysts in different types of commercial cat litter. J of Parasitology, 97(5): 751-754.
3. Hornfeldt S, Westfall ML (1996) Suspected bentonite toxicosis in a cat from ingestion of clay cat litter. Vet Hum Toxicol. 38(5): 365-366.
4. Krajarngjang W, Vichitbandha P (2018) Properties of cat litters produced from Leucaena stalk and Bamboo residue soil. Proceeding of the 15th KU-KPS National Conference, December 6-7, 2018. Kasetsart University Kamphaeng Saen Campus, Nakorn Pathom, Thailand. 1840-1847. (in Thai)
5. Wichiensan N, Vichitbandha P (2019) Effect of mashed *Typha angustifolia* leaf, rice husk ash, glycerol and guar gum ratios in cat litters from bamboo residue soil on hydration capacity and clumping ability of cat litters. Special problem research report for Bachelor of Science Program in Biological Sciences, Kasetsart University. (in Thai)

Biography



Dr.Patchanee Vichitbandha is a lecturer in Biology. She has her expertise in evaluation of biological control agents and natural products in the agricultural pest control. She also interested in biodiversity conservation and utilization. One interested task of her team is to utilize the agricultural products to increase their values in the market. Asso.Prof.Chayakrit Sinthusingha helps her in the clinical advises and research practices for evaluation for safety in cat litter products in this study.

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Notes/Comments:

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