

An investigation of the mycobiota of the daily cow manure and black soldier fly frass ⁽¹⁾

Shih-Hsiang Liang ⁽²⁾⁽⁴⁾ Chia-Xin Lee ⁽³⁾ and Szu-Han Wang ⁽³⁾

Received: Aug. 3, 2022; Accepted: Sep. 16, 2024

Abstract

In this study, the cow manure after solid-liquid separation was used as the feeding substrate for the larvae of black soldier fly. The residues of cow manure transformed by larvae namely frass were investigated. The difference between changes in mycobiota composition and daily cow manure was adopted to evaluate the hygienic safety of treating frass produced from daily cow manure using the larvae of black soldier fly, through the changes of growth and decline in microorganism of daily cow manure and frass. A total of 35 and 34 million base pairs was collected from dairy cow manure and frass samples, with 72,027 and 62,530 operational taxonomic unit, respectively. The heterogeneity of sample forming proportion in the taxonomic stratum increased eventually, resulting in more distinct diversity in the classification of genus and species. Compared with the Mycobiota in daily cow manure, there are 13 species of bacteria in frass that could decrease the proportion of bovine pathogens opposite and 9 species of bacteria in frass increase the proportions of bovine pathogens. However, the infection of such bacteria was not high and whether the species of *Clostridium* being the pathogens requires further investigation. The results showed a small amount of bovine pathogenic bacteria in the frass and in spite of the small proportion, hygienic and safe operation of dairy cow manure should still be taken into consideration to avoid possible hazard caused by opportunistic pathogenic bacteria on the cows.

Key words: Cow manure, Frass, Black soldier fly, Mycobiota.

(1) Contribution No. 2802 from Taiwan Livestock Research Institute (TLRI), Ministry of Agriculture (MOA).

(2) Technical Service Division, MOA-TLRI, HsinHua, Tainan 71246, Taiwan, R. O. C.

(3) Northern Region Branch, MOA-TLRI, Miaoli 36843, Taiwan, R. O. C.

(4) Corresponding author, E-mail: shliang@tlri.gov.tw.