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Changes in the microbial communities in vacuum-packaged smoked bacon during storage

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12 **ABSTRACT**

13 This study aimed to gain deeper insights into the microbiota composition and
14 population dynamics, monitor the dominant bacterial populations and identify the
15 specific spoilage microorganisms (SSOs) of vacuum-packed bacon during refrigerated
16 storage using both culture-independent and dependent methods. High-throughout
17 sequencing (HTS) showed that the microbial composition changed greatly with the
18 prolongation of storage time. The diversity of microbiota was abundant at the initial
19 stage then experienced a continuous decrease. Lactic acid bacteria (LAB) mainly
20 *Leuconostoc* and *Lactobacillus* dominated the microbial population after seven days
21 of storage. A total of 26 isolates were identified from different growth media using
22 traditional cultivation isolation and identification method. *Leuconostoc mesenteroides*
23 and *Leuconostoc carnosum* were the most prevalent species since day 15, while
24 *Lactobacillus sakei* and *Lactobacillus curvatus* were only found on day 45,
25 suggesting that they could be responsible for the spoilage of bacon. *Serratia*, *Rahnella*,
26 *Fusobacterium* and *Lactococcus* underwent a dramatic increase at some point in

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