

ABSTRACT

Fruits are an important source of natural compounds with high antioxidant activity. This study aimed to identify the fungal pathogens responsible for postharvest diseases in fruits marketed in Lhokseumawe City. Fruit samples exhibiting postharvest disease symptoms were collected from several traditional markets and fruit stores in Lhokseumawe City. The samples were isolated on *Potato Dextrose Agar* (PDA) medium, purified, and identified based on their macroscopic and microscopic characteristics. Koch's postulates were subsequently performed to confirm that the isolated fungi were the causal agents of the diseases observed in the fruit samples. The results showed that postharvest pathogenic fungi were associated with several fruit commodities, including bananas, pears, avocados, snake fruits, mangoes, grapes, oranges, dragon fruits, papayas, and apples. A total of 18 fungal isolates were successfully obtained from fruits exhibiting symptoms such as fruit rot, brown to black lesions, tissue softening, and necrosis on the fruit surface. The identified fungal species and genera included *Colletotrichum* sp., *Alternaria* sp., *Pestalotiopsis* sp., *Thielaviopsis* sp., *Pythium* sp., *Aspergillus* sp., *Paecilomyces* sp., *Penicillium* sp., *Phytophthora* sp., *Fusarium* sp., *Corynespora* sp., and *Cladosporium* sp. The findings indicate that postharvest pathogenic fungi are present in fruits marketed in Lhokseumawe City and may reduce fruit quality, shorten shelf life, and pose potential risks to food safety.

Keywords: Koch's postulates, macroscopic, microscopic, morphological characteristics, postharvest damage.