

Impact of Threshing Method on Black Pepper Pericarp and Processing Procedures on Fungal Infection of Black Pepper (*Piper nigrum* L.)

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Black pepper (*Piper nigrum* L.) can be used in human foods for flavoring, and to incorporate aroma. Good Agricultural Practices can reduce the toxigenic fungi growth and dissemination in the post-harvest process of black pepper. Mechanical damage to the plant material during post-harvest manipulation may increase the possibility of subsequent fungal contamination. Therefore, the study aimed to find the damage percentage of the black pepper fruit's pericarp due to the facilitation of different threshing methods and the potential of fungal infections on black pepper due to the facilitation of different processing procedures in the processing chain. Three types of threshing methods, two types of blanching, and two types of drying methods were used as treatments. To determine the damage percentage of the black pepper, physical counting was used and to determine the fungal infection rate, the Serial dilution method and agar plate method were used. Minimum pericarp damage (17.62%) resulted in the hand-picked sample and maximum pericarp damage (93.89%) resulted in machine threshed sample. The fungal infection rate was significantly lower (1.4×10^4 Colony forming units/ml) in hand-picked samples compared to other treatments (Foot Threshed: 1.5×10^4 Colony forming units/ml, Machine Threshed: 4.6×10^4 Colony forming units/ml), because the damage to the spikes and the pericarp of the pepper fruits were minimal. The fungal infection rate was significantly higher in sun-dried and without-blanching samples as it took much time to dry the pods (Sun-dried- without blanching: 4.7×10^4 colony forming units/ml and machine-dried and blanching: 0.22×10^4 colony forming units/ml). Therefore, hand threshing, blanching, and machine drying were the best practices in the black pepper processing chain. If practiced machine threshing and foot threshing, it is essential to follow blanching and machine drying to minimize fungal infection.

Keywords: Black pepper, Damage percentage, Fungal contamination, Processing procedures