

## عنوان مقاله:

Radiological Assessment of the Artificial and Natural Radionuclide Concentrations of Some Species of Wild Fungi and Nourished Mushrooms

## محل انتشار:

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## خلاصه مقاله:

Introduction Artificial and natural radionuclides are found in diverse environmental compartments, such as water, soil, rocks, vegetables, animals, and human body tissues. As such, humans and environments are at constant exposure of these radiation types. In this research investigated specific activities of radionuclide and dose assessment of some species of mushrooms. Materials and Methods In this study, natural and artificial radioactivity concentrations were determined in *Agaricus bispora* (nourished mushrooms), *Cantharellus cibarius*, *Coprinus micaceus* (wild fungi species) and their composts through gamma-ray spectrometry using a high-purity germanium (HPGe) detector with 30% relative efficiency. Results Radioactivity concentrations of  $^{238}\text{U}$  and  $^{232}\text{Th}$  in edible mushroom samples were lower than the minimum detectable activity (MDA). For  $^{40}\text{K}$  and  $^{137}\text{Cs}$ , these concentrations were within the ranges of 1895.24-1920.24 and  $<0.45-0.72\text{Bq/kg}$ , respectively. Moreover, specific activities of  $^{238}\text{U}$ ,  $^{232}\text{Th}$ ,  $^{40}\text{K}$ , and  $^{137}\text{Cs}$  in the composts varied within the ranges of  $< 0.47 - 3.40$ ,  $6.59-7.82$ ,  $1166.12-1428.27$ , and  $0.75-1.97\pm\text{Bq/kg}$ , respectively. Excess lifetime cancer risk due to the ingestion of nourished mushrooms was calculated as  $1.28\times 10^{-4}$ , which is lower than the maximum acceptable value. Conclusion Results of this study showed that the radioactivity concentrations of edible mushrooms are close to or lower than MDA. In addition, radioactivity concentrations of the composts were indicative of the low pollution of the studied regions by radiocesium. Annual consumption rate threshold was calculated as 26.7 kg in dry weight (fresh weight: 267 kg). Therefore, it could be concluded that consumption of these mushrooms is associated with no health consequences for consumers.

## کلمات کلیدی:

Cancer Risk, Foodstuff, Mushroom, Radionuclide

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