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Genotoxic effect of pesticides on gill tissues of green-lipped mussel (*Perna viridis*)

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The marine ecosystem is constantly threatened by wide variety of anthropogenic substances arising as a result of hazardous chemicals from industries, agricultural sources, sewage disposal, heavy metal, oil, petroleum etc. Pakistan is an agricultural country therefore pesticides are widely used on its cropland. The present study is carried out to assess the Micro-Nucleus (MN) frequency in the gill tissues of green mussel (*Perna viridis*) after exposure to different concentrations of organophosphate pesticides (chlorpyrifos, malathion), synthetic pyrethroid pesticide (cypermethrin, lambda-cyhalothrin) and herbicide (buctril). MN is considered as the marker of cytogenetic damage appearing after the impact of genotoxic compound. The MN frequencies of the pesticides treated mussels are observed to increase significantly ($p < 0.05$) in a dose-dependent relationship at all exposure periods as compare to control. The highest MN frequencies were recorded after cypermethrin exposure on twelfth day (10, 11.5 and 13.5% for 0.5 ppm, 1 ppm and 1.5 ppm concentrations, respectively) in gill tissue. The genotoxicity of pesticides on *Perna viridis* in this study is found to be in the order of cypermethrin, chlorpyrifos, malathion, lambda-cyhalothrin and buctril in gill tissues.

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