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THE IMPACT OF VEHICULAR TRAFFIC ON XANTHORIA PARIETINA POPULATIONS ALONG AND FAR FROM ROADS WITHIN VARIOUS LANDSCAPES

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Abstract

The environmental impact of land transport caused by different categories of vehicles is a subject of concern, especially when considering the effects on human health. This study revealed the capacity of young and old body components of *Xanthoria parietina* to accumulate elements derived from traffic due to cumulative exposure. Significant differences in Zn and Fe accumulation between the young and old components of *X. parietina* were recorded along roadsides, whereas differences in Fe accumulation between the young and old components were only observed far from the roadsides. Significant differences in Fe accumulation were caused by the high number of vehicles along the studied roads. Vehicular traffic and other element sources could act synergistically on *X. parietina* populations near and far from roadsides. Of all the vehicle categories, only heavy-duty vehicles were positively related to Al, Fe, and Mn concentrations in the old components of *X. parietina*. Along roadsides, Al accumulated only in the old components of *X. parietina* andwas significantly related to the presence of agricultural fields. Far from roads, Mn accumulated only in the young components of *X. parietina* and was significantly related to the meadow and forest land use types. In this study, the number of cars was significantly higher along the Paneuropean roadways. In addition, heavy traffic with heavy-duty vehicles occurred on the Paneuropean and national roadways, while traffic with passenger vehicles was only significantly related to the Paneuropean roadways. Along the Paneuropean roadways, only Fe concentrations were increased in the central parts of *X. parietina*.

Key words: air quality, land use type, roadside, vehicle category, *Xanthoria parietina*

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