

PP-70 ACCUMULATION OF HEAVY METALS IN ACACIA (*Robinia pseudoacacia* L.) DEPENDING
ON AIR POLLUTION IN GUMUSHANE

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Heavy metals, naturally occurring compounds in the earth's crust, are non-biodegradable and have high potential to accumulate in living tissues by causing several disorders and diseases even at trace levels of exposure. Some of them are essential for human body at trace levels but above certain threshold concentrations they are considered as potentially toxic substances to human metabolism.

Gumushane hosts rich mineral deposits, one of the main causes of heavy metal pollution, and there are extensive mining operations conducted in the province. Owing to the fact that it is surrounded by mountains and thus has limited air circulation, it suffers from intense air pollution. For this reason, it is important to determine the size and distribution of heavy metal pollution in Gumushane in terms of protection of environment and human health.

This study was carried out to investigate the usage of acacia (*Robinia pseudoacacia* L.) leaves in monitoring of heavy metal pollution in Gumushane province. For this purpose the acacia samples were collected from 32 different localities from the mining area, industrial zone and highway area where the heavy metal pollution may be at high levels. The obtained mean Pb, Cd, Cu, Zn, Cr, Ni, Mn, Fe, Co, Al and As levels in the acacia samples taken from the mining area were 1.9, 0.1, 5.4, 26.1, 0.4, 0.7, 104.1, 274.0, 0.1, 296.8, and 0.2 $\mu\text{g g}^{-1}$, respectively; taken from the highway area were 8.2, 0.1, 6.3, 21.4, 0.6, 0.8, 76.0, 357.6, 0.1, 495.4, and 0.9 $\mu\text{g g}^{-1}$, respectively; and taken from the industrial zone were 1.3, 0.01, 4.9, 10.9, 0.6, 0.7, 74.1, 285.4, 0.1, 342.2, 0.3 $\mu\text{g g}^{-1}$, respectively. Hg ions were not detected in any of the analyzed samples. It has been determined that the mean Al levels of acacia samples taken from the mining area, highway area and industrial zone is higher than the tolerable upper limit.

Keywords: Gumushane, Heavy metal, Acacia, *Robinia pseudoacacia* L.

References

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