Assessment of the Levels of Mercury in Students Aged 12 to 18

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Human beings are exposed to mercury every day, either through their domestic or work environment. In 2017, a study was developed which assessed mercury contamination in a group of students, through the analysis of the levels of this element in human hair. Other products were also analyzed (food; hygiene and cosmetic products; office supplies). The process of retrieving biologic samples was approved by the school Pedagogic Administration and by the National Commission for Data Protection. All the data was coded and studied anonymously. The sample was composed by 75 individuals, between 12 and 18 years old, with an average age of 14.76 years. The experimental protocol followed the recommendations from the international project COPHES. The technique utilized to quantify the level of mercury in the samples was direct thermal decomposition, through the analyzer NIC MA-3000. 82 samples of hair were examined, which revealed an average concentration of 1150,10 ± 685,34 ng g-1 of mercury. According to the US EPA, the maximum safe level is around 1000 ng g-1, and concentrations above this pose a risk to human health. Comparatively, 46% of the studied population have higher levels of this component. When compared to WHO's reference value, 2000 ng g-1, 11.42% possess higher concentrations. The studied products also revealed elevated concentration levels of mercury (food: n=43, average of 95 ng g-1; hygiene and cosmetic products: n=48, average of 0.39 ng g-1; office supplies: n=4, average of 3.93 ng g-1), which must be very carefully analyzed.

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