

# Seasonal variability on the Air Pollution in Korça City

---

**Raimonda Totoni (Lilo)<sup>1\*</sup>**

Edlira Baraj<sup>1</sup>, Valbona Mazreku<sup>2</sup>, Besnik Baraj<sup>3</sup>, Elvis Çela<sup>2</sup>,

<sup>1</sup>*Department of Chemistry, Faculty of Mathematical Engineering and Physical Engineering, Polytechnic University of Tirana, Albania*

<sup>2</sup>*Milieukontakt Albania, Tirana, Albania*

<sup>3</sup>*Department of Chemistry, Faculty of Natural Sciences, University of Tirana, Albania*

[rtotoni@gmail.com](mailto:rtotoni@gmail.com)

---

## Abstract

Air pollution, even in low concentration, is a big environmental threat to the human health. The mayor sources of urban air pollution are industrial activities, transport vehicles and heating with wood. PM<sub>2.5</sub>, PM<sub>10</sub>, NO<sub>2</sub> and CO<sub>2</sub> have been analyzed in Korça City, in two seasons, winter and summer, during 2022. The data obtained indicate a significant difference on the concentrations of these contaminants in the measurement periods. All the parameters, in the winter season, clearly exceed the maximum allowable levels, defined in national and international standards. However, the levels of four contaminants in the summer season are significantly diminished compared to winter, being in average for PM<sub>10</sub> and PM<sub>2,5</sub> almost 10 times lower, for CO<sub>2</sub> reduced more than 2 times, whilst for NO<sub>2</sub> lowered by around 24%. From the analyzed data in the winter season, a good correlation has been observed between PM<sub>10</sub> and PM<sub>2,5</sub> (0,897) and between them and CO<sub>2</sub> (0,618 and 0,634 respectively), which indicates that they have similar emission source. The surpassing levels of such contaminants in the winter season are related with the vast use of wood burning for communal heating, which seems to be the mayor contributor in the urban air pollution in Korça City.

Key words: Air Pollution, PM<sub>2.5</sub>, PM<sub>10</sub>, NO<sub>2</sub>, CO<sub>2</sub>, Korça City.

## References

- [1] World Health Organization. (2021). WHO global air quality guidelines: particulate matter (PM<sub>2.5</sub> and PM<sub>10</sub>), ozone, nitrogen dioxide, sulfur dioxide and carbon monoxide. World Health Organization. <https://apps.who.int/iris/handle/10665/345329>.
- [2] Totoni, R., Baraj, E., Gjeca, V. and Fusha, G. (2017). "Study of PM<sub>2.5</sub> and PM<sub>10</sub> Mass Concentration in Korça City", Athens: ATINER'S Conference Paper Series, No: ENV2017-2302.
- [3] European Commission (2008). Directive 2008/50/EC of the European Parliament and of the Council of 21 May 2008 on ambient air quality and cleaner air for Europe.