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To study the impact of climate change on air pollution (smog) by temporal variation in the frequency of air pollutants in the ambient air of Lahore, Pakistan

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In present study, the seasonal variation in the magnitude of air pollutant was investigated to determine the temporal prevalence of air pollutant in the ambient air of Lahore. Data set of three years (2016-2019) was obtained from compact ambient air quality monitoring station, installed by Environmental Protection Department on Jail Road, Lahore. Statistical analysis of air pollutant revealed that every year in winter, the concentration range of PM10, PM2.5, NO, NO2 was significantly higher than Punjab. Environmental Quality Standards and WHO Air Quality showed that tropospheric ozone was found higher in summer, Whereas coexistence trend analysis for pollutant showed negative correlation of NO>PM2.5>NO2>SO2 and null association of PM10 with tropospheric ozone. The total pollution load in air was found higher in winter than summer seasons. The seasonal impact on air pollutant concentration, Pearson correlation analysis was also assessed. The results showed that Ozone (O3) was found to have positive correlation with temperature>wind speed>relative humidity>sunshine hour while opposite relation with air pressure, while NO, NO2, SO2, PM2.5 showed positive corelation with air pressure and negative correlation with temperature, sunshine and wind speed. These factual figures revealed that ambient air of Lahore has been suffering from reductive type air pollution in winter due to higher content of NO, NO2, SO2, PM2.5 which make the air acidic in nature and axidative-type pollution in summer due to presence of tropospheric ozone since 2016 because local weather conditions have profound effect on air pollutant transportation behaviour. Change in temperature, wind and relative humidity due climate change increase the acidic rain and smog in Lahore which are major cause of respiratory, skin and eye diseases.

Keywords:

Climate change, Ambient air, Air pollutant, Smog.

Biography

Tahira Mughal is currently working as Associate Professor at Lahore College for Women University | LCWU Department of Environmental Science PhD. Her searches are Fabrication of biogenic silver nanoparticles from Ficus religiosa bark extract and their application for chromium removal, Processing of fish skin into exotic and unique leather by vegetable tanning, Vegetable Tanning of Sole Fish Skin by Using Tannins Extracted from Plants etc.

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