## **IJARSCT**



International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)

Volume 2, Issue 4, April 2022

# An Investigation of Air Pollution Index in Nanded City and its Impact on Biological Aspects

Mr. Ashish A. Divde<sup>1</sup> and Mr. Mahesh G. Wakhradkar<sup>2</sup>

Department of Environmental Science<sup>1</sup> and Department of Chemistry<sup>2</sup> Hutatma Jaywantrao Patil Mahavidhyalaya, Himayatnagar, Maharashtra, India

**Abstract:** The air pollution has become a major problem of new civilized world where the number of different emission sources like industrial exhaust, Automobile exhaust are polluting the quality of air, but in small town areas like Nanded, motor vehicle emission contribute the major part of air pollution. According to WHO (World Health Organization)  $SO_2$ ,  $NO_x$ , Particulate Matter, ground level ozone, CO and Pb these six pollutants are responsible for short and long term impact on human health, some common short term impacts includes respiratory disease, eye irritation, skin diseases, cardiovascular diseases and long term chronic diseases such as Cancer. In early study we focus on Local air pollution produced by automobile exhaust & some small scale industries and construction fields in Nanded city. During study we calculated the concentration of major air pollutants (including particulate matters SPM and RSPM,  $SO_2$  and  $NO_x$ ) and founded sources of emission and impact of pollution on human health and measured the susceptibility status of some plants to the air pollution because There are several plant species that are susceptible in polluted atmosphere, they can reduce atmospheric pollutants by natural way, and therefore it is necessary to find out the air pollution tolerant value of plants for their sensitivity and tolerance value to air pollutants.

Keywords: Air Pollution, Particulate Matter, RSPM, Eucalyptus, Mangifera indica, pH, Sensitive plants

#### REFERENCES

- [1]. Agrawal SB, Singh A, Rathore D (2004). Interactive effect of air pollution and nutrients on biochemical processes and yield of wheat grown in peri-urban areas of Allahabad city. Ecoprint 11: 1-6.
- [2]. Bayram,H.Dortbudak,Z.,Fisekci,F.E.Kargin,M.& Bulbul,B(2006): "Hava Kirliliğinin İnsan Sağlığına Etkileri, Dünyada, Ülkemizde ve Bölgemizde Hava Kirliliği Sorunu" Dicle Tip Dergisi, 33,pp.105-112
- [3]. Vallero D.Fundamentals of Air Pollution 4<sup>th</sup> ed. California, USA; Academic Press;(2007)
- [4]. Alis Masitah, Hamzah Zaini and Kenn Lee See. PM10 and Total suspended particulates(TSP) measurements in various power stations, The Malayasian Journal of Analytical Sciences, Vol 11, No 1, (2007): 255-261.
- [5]. Lima Ling L.Hughesh Susan J., Hellawellb Emma E.Integrated decision support system for urban air quality assessment, Environmental Modelling & Software, Vol. 20, (2005) 947-954.
- [6]. Kilburn, K.H.(1992). Pulmonary Responses to gases and particles. Last, J.M., Wallace, R.B., Eds., Public Health and Preventive Medicine. Appleton & Large, Division of Prentice Hall, pp.463-477.
- [7]. Angold PG (1997). The impact of a road upon adjacent health land vegetation effects on plant species composition. J. Appl. Ecol. 34: 409-417
- [8]. Kindzierski W.B., M.Gamal El.Din, Haque N. Ambient Air Quality Trends in west central Airshed Society Zone, November (2006)
- [9]. Kumar P.(1990) Air pollution climatology of Dhanbad coal field area. M.Phil dissertation Submitted to SES,JNU, New Delhi, p.p. 15-25
- [10]. Hameed,S and Dignon J.(1988): changes in the geographical distribution of global emissions of Nox and Sox from fossil-fuel combustion between 1966 and 1980. Atmospheric Environment,22,pp.441-449
- [11]. Dignon,J.(1992): Nox & Sox emissions from fossil fuels: a global distribution. Atmospheric Environment,26-A,pp.1157-1163.
- [12]. Kampa, M. & Castanas, E.(2008): Human Health Effects of Air Pollution, Environmental pollution, Vol.151, pp, 362-367

DOI: 10.48175/IJARSCT-3465

## **IJARSCT**



### International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)

#### Volume 2, Issue 4, April 2022

- [13]. Naik Shrikanta. Studies on Pollution Status of Bondamunda area of Rourkela industrial complex (2005)
- [14]. Air pollutants and air quality terms, Air quality monitoring network, 2008.
- [15]. Evyapan, F.(2008): Hava Kirliligini Solunumsal Morbidite Ve Mortalite Uzerindeki Etkileri: Turkiye ve Dunya verileri Turkiye Klinikleri J.Pulm Med-special Topics,1(2): pp,48-60
- [16]. Das S, Prasad P, (2010). Seasonal variation in air pollution tolerance indices and selection of plant species for industrial areas of Rourkela. Ind. J. Env. Protec. 30(12): 978-988
- [17]. Balaceanu C., Stefans.(2004) The assessment of the TSP particulate matter in the urban ambient air, Romanian Reports in physics, Vol.56, No.4 (2004):pp.757-768
- [18]. Robinson DL. Air Pollution in Australia: Review of costs, Sources and potential solutions. Health promot J Austr 2005; 16:213-20
- [19]. Steubing L., Fangmier A Both R, (1989). Effects of SO2, NO2 and O3 on Population Development and Morphological and Physiological parameters of Native Herb Layer Species in a Beech Forest. Environmental Pollution Vol., 58, PP. 281-302
- [20]. Varshney CK (1985). Role of plant in indicating, monitoring and mitigating air pollution. *In*: Air pollution and pants: A state-of-The-Art Report (Eds. GV Subrahmanium, DN Rao, CK Varshney and DK Viswas). Ministry of Environment and Forests. New Delhi, pp. 146-170.
- [21]. Raza S.H. and Murthy, M.S.R. (1988). Air Pollution Tolerance index of certain plants of Nacharam Industrial Area, Hyderabad, Indian J. Bot, Vol.11, No.1, PP. 91-95.
- [22]. Speeding DJ, Thomas WJ (1973). Effect of sulphur dioxide on the metabolism of glycollic acid by barley (*Hardeum vulgare*) leaves. Aust. J. Biol. Sci., 6: 281-286.
- [23]. Bell JNB, Mudd CH (1976). Sulphur dioxide resistance in plants: a case study of *Lolium perenne*. *In*: Effect of Air Pollutants on Plants (Ed:T.A. Mansfield), Cambridge University Press. pp. 87-103.
- [24]. Keller T, Schwager H (1977). Air pollution and ascorbic acid. Eur. J. Forestry Pathol. 7: 338-350.
- [25]. Dedio, W. (1975). Water relations in wheat leaves as Screening Test for Draught Resistance. Can. Journal Plant Science, Vol. 55, PP. 369-378.
- [26]. Scholz F, Reck S (1977). Effects of acids on forest trees as measured by titration *in vitro*, inheritance of buffering capacity in *Picea abies*. Water, Air and Soil Pollut. 8: 41-45.
- [27]. URL-1: http://www.lbl.gov/Education/ELSI/pollution-main.html, 2010
- [28]. URL-2: http://www.epa.gov/pm-pollution/particulate-matter-pm-basics#PM
- [29]. URL-3: http://www.ttb.ord.tr/eweb/yatagan/icin.html
- [30]. URL-4: http://www.worstpolluted.org/
- [31]. URL-5: Muthukumara Mani. "The World Bank, Washington DC-India's Air Pollution woes Daily Dose of Air Pollution," Retrieved September-2014 http://urbanemissions.blogspot.in/2013 03 01 archive.html

DOI: 10.48175/IJARSCT-3465