PETA SEBARAN KADAR KARBON MONOKSIDA (CO) YANG DIHUBUNGKAN DENGAN JARAK JALAN RAYA, JUMLAH KENDARAAN DAN METEOROLOGI DI KOTA YOGYAKARTA

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INTISARI

Latar Belakang: Penurunan kualitas udara berasal dari proses pembakaran bahan bakar kendaraan bermotor, dimana pada Kota Yogyakarta jumlah kendaraan bermotor mengalami kenaikan sebesar 50,2%. Kendaraan bermotor sendiri menghasilkan gas berbahaya dan sangat dominan yaitu CO. Diketahui pada tanggal 21 – 28 Agustus 2021, kadar CO di Kota Yogyakarta mengalami peningkatan yang signifikan yaitu dari 86,45 – 812,25 µg/m^3. CO yang terhirup manusia akan mengikat hemoglobin darah yang bertugas sebagai pengangkut oksigen dan membentuk COHb. Adapun faktor fisik seperti jarak jalan dan faktor meteorologi meliputi suhu, kelembapan dan kecepatan angin dapat mempengaruhi peningkatan kadar CO di udara.
Tujuan: Mengetahui peta sebaran kadar karbon monoksida (CO) yang dihubungkan dengan jarak jalan raya, jumlah kendaraan dan meteorologi di Kota Yogyakarta
Hasil: Berdasarkan hasil uji *One-Way Anova* didapatkan sig > 0,05, pada uji-t antara kadar CO dengan jumlah kendaraan di jarak 150 m didapatkan nilai sig = 0,008, dan pada uji-t antara kadar CO dengan kecepatan angin di jarak 100 m (sig = 0,021) dan 150 m (sig = 0,036)
Kesimpulan: Sebaran kadar CO pada setiap jalan masih berada dibawah baku mutu yaitu 35 ppm. Diketahui bahwa lokasi yang memiliki area *hotspot* kadar CO, jumlah kendaraan dan suhu udara cenderung berada di Jl. Panembahan Senopati. Kemudian, sebaran kelembapan udara tidak terdapat pengaruh yang signifikan terhadap kadar CO. Sedangkan, *hotspot* sebaran kecepatan angin cenderung berada di Jl. Jend. Sudirman.

Kata Kunci: CO, Jarak, Jumlah Kendaraan, Kecepatan Angin, Kelembapan, Suhu

MAP OF THE DISTRIBUTION OF CARBON MONOXIDE (CO) RELATED TO THE DISTANCE OF HIGHWAYS, THE NUMBER OF VEHICLES AND METEOROLOGY IN YOGYAKARTA CITY

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ABSTRACT

Background: *The decline in air quality comes from the process of burning motor vehicle fuel, where in Yogyakarta City the number of motorized vehicles has increased by 50.2%. Motor vehicles themselves produce a dangerous and very dominant gas, namely CO. It is known that on August 21-28, 2021, CO levels in Yogyakarta City experienced a significant increase, from 86.45 – 812.25 µg/m3. The CO inhaled by humans will bind to blood hemoglobin which serves as an oxygen carrier and forms COHb. Physical factors such as road distance and meteorological factors including temperature, humidity and wind speed can affect the increase in CO levels in the air.*
Purpose: *Knowing the distribution map of carbon monoxide (CO) related to the distance of the highway, the number of vehicles and meteorology in Yogyakarta City*
Result: *Based on the results of the One-Way Anova test sig > 0.05, in the t test between CO and the number of vehicles at a distance of 150 m, the sig value = 0.008, t test between the CO and wind speed at a distance of 100 m (sig = 0.021) and 150 m (sig = 0.036).*
Conclusion: *The distribution of CO levels on each road is still below the quality standard of 35 ppm. It is known that locations that have hotspot areas of CO levels, the number of vehicles and air temperature tend to be on Jl. Panembahan Senopati. Then, the distribution of air humidity does not have a significant effect on CO levels. Meanwhile, the hotspot for the distribution of wind speed tends to be on Jl. Jend. Sudirman.*

Keywords: *CO, distance, number of vehicles, wind speed, humidity, temperature*