

**ANALISIS KONSENTRASI *PARTICULATE MATTER* 2,5
(PM_{2,5}) DAN RISIKO KESEHATAN LINGKUNGAN
TERHADAP MASYARAKAT SEKITAR BUKIT KARANG
PUTIH KOTA PADANG**

TUGAS AKHIR

Sebagai salah satu syarat untuk menyelesaikan

Program Strata -1

Departemen Teknik Lingkungan

Fakultas Teknik Universitas Andalas



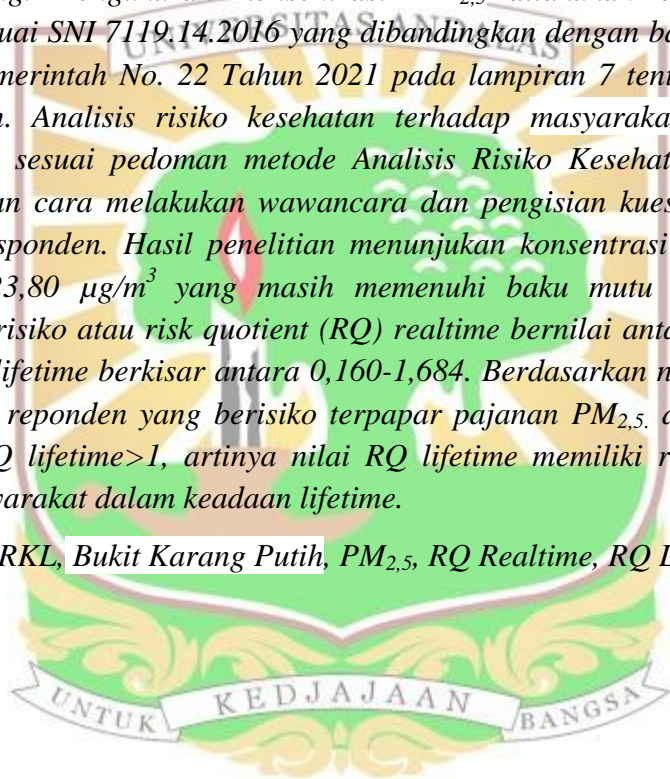
**DEPARTEMEN TEKNIK LINGKUNGAN
FAKULTAS TEKNIK - UNIVERSITAS ANDALAS
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ABSTRAK

Penelitian ini bertujuan untuk menganalisis konsentrasi Particulate Matter 2,5 μm ($\text{PM}_{2,5}$) dan menganalisis risiko kesehatan lingkungan terhadap masyarakat sekitar Bukit Karang Putih, Kota Padang. Pengukuran konsentrasi $\text{PM}_{2,5}$ dilakukan sebanyak 5 titik pengukuran dengan menggunakan alat Low Volume Air Sampler (LVAS) selama 1 jam pengukuran masing-masing pada siang (12.00-13.00 WIB), sore (18.00-19.00 WIB), dan malam hari (20.00-21.00 WIB). Pemilihan lokasi penelitian berdasarkan lokasi yang berpotensi paling berisiko terkena paparan $\text{PM}_{2,5}$ karena terletak di tiga sumber pencemar udara. Sumber pencemar udara pada lokasi penelitian berasal dari sumber kegiatan produksi dan pertambangan PT Semen Padang serta asap kendaraan bermotor dari Jalan Raya Indarung. Pengukuran konsentrasi $\text{PM}_{2,5}$ dilakukan dengan metode gravimetri sesuai SNI 7119.14.2016 yang dibandingkan dengan baku mutu sesuai Peraturan Pemerintah No. 22 Tahun 2021 pada lampiran 7 tentang baku mutu udara ambien. Analisis risiko kesehatan terhadap masyarakat sekitar Bukit Karang Putih sesuai pedoman metode Analisis Risiko Kesehatan Lingkungan (ARKL) dengan cara melakukan wawancara dan pengisian kuesioner terhadap 100 orang responden. Hasil penelitian menunjukkan konsentrasi $\text{PM}_{2,5}$ berkisar antara 8,36-23,80 $\mu\text{g}/\text{m}^3$ yang masih memenuhi baku mutu udara ambien. Karakteristik risiko atau risk quotient (RQ) realtime bernilai antara 0,004-0,672 dan nilai RQ lifetime berkisar antara 0,160-1,684. Berdasarkan nilai RQ lifetime terdapat 13% responden yang berisiko terpapar paparan $\text{PM}_{2,5}$ dari 100% total responden. RQ lifetime >1 , artinya nilai RQ lifetime memiliki risiko kesehatan terhadap masyarakat dalam keadaan lifetime.

Kata kunci: ARKL, Bukit Karang Putih, $\text{PM}_{2,5}$, RQ Realtime, RQ Lifetime



ABSTRACT

This study aimed to analyze the concentration of 2.5 μm Particulate Matter ($\text{PM}_{2.5}$), and analyze environmental health risks to the Bukit Karang Putih, Padang City community. Measurement of $\text{PM}_{2.5}$ concentration was carried out at as many as five measurement points using a Low Volume Air Sampler (LVAS) for 1 hour of measurement each in the afternoon (12 PM-1 PM), evening (6 PM-7 PM), and night (8 PM-9 PM). The selection of research sites is considered based on the locations that are potentially most at risk of $\text{PM}_{2.5}$ exposure because: located in three sources of air pollution. The source of air pollution at the research site comes from the production and mining activities of PT Semen Padang and vehicles from Jalan Raya Indarung. Measurement of $\text{PM}_{2.5}$ concentration did carry out using the gravimetric method according to SNI 7119.14.2016, which did compare with the quality standard according to Government Regulation no. 22 of 2021 in Annex 7 regarding ambient air quality standards. Health risk analysis for the community around Bukit Karang Putih guidelines according to the Environmental Health Risk Analysis (EHRA) method by conducting interviews and filling out questionnaires to 100 respondents. The results showed that the concentration of $\text{PM}_{2.5}$ ranged from 8.36-23.80 g/m^3 , which met the ambient air quality standards. Realtime intake values ranged from 0.000004-0.006 $\text{mg}/\text{kg}\cdot\text{day}$ and lifetime intake values ranged from 0.0016-0.0168. The real-time risk quotient (RQ) was feasible between 0.004-0.672, and the lifetime RQ value ranged from 0.160-1.684. Based on the RQ lifetime value, 13 % respondents were at risk of exposure to $\text{PM}_{2.5}$ RQ lifetime >1 , meaning that the lifetime RQ value has a health risk to society for life.

Keywords: Air pollutant, Bukit Karang Putih, Environmental Health Risk Assessment (EHRA), $\text{PM}_{2.5}$, RQ Realtime, RQ Lifetime

