

## ABSTRAK

### CEMARAN MERKURI DI UDARA PADA KULIT POHON TANAMAN MPTS DI DESA BUNUT SEBERANG, KECAMATAN WAY RATAI, KABUPATEN PESAWARAN, PROVINSI LAMPUNG

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Aktivitas pemurnian emas di sekitar pemukiman masyarakat menimbulkan pencemaran lingkungan akibat penggunaan merkuri. Merkuri dapat dengan mudah menguap dan terbawa oleh angin. Tanaman MPTS yang dibudiyakan oleh masyarakat dapat terkontaminasi oleh merkuri yang menguap di atmosfer. Penelitian ini bertujuan menetapkan cemaran merkuri pada kulit pohon tanaman *multi purpose trees species* (MPTS) dan memetakan sebaran cemaran merkuri di udara melalui tingkat cemaran pada kulit pohon. Penelitian dilakukan pada Desa Bunut Seberang, Kecamatan Way Ratai, Kabupaten Pesawaran, Provinsi Lampung dan di arboretum Universitas Lampung pada bulan Maret 2021. Pengambilan sampel dilakukan dengan metode *purposive sampling* pada kedua lokasi penelitian. Sampel berupa kulit pohon dengan ukuran 10 x 10 cm yang diambil setinggi *Diameter Breast Hold* (DBH). Selanjutnya sampel diolah dan dianalisa menggunakan *Atomic Absorption Spectroscopy* (AAS) untuk mengetahui kandungan merkuri, dan analisa menggunakan *Scanning Electron Microscope – Energy Dispersive X-ray* (SEM-EDX). Kandungan merkuri selanjutnya diinterpolasikan menggunakan ArcGIS 10.6 untuk mengetahui persebaran merkuri di atmosfer. Hasil penelitian menunjukkan bahwa terdapat 13 jenis tanaman MPTS yang mampu mengakumulasi merkuri di udara yaitu, alpukat (*Persea americana*), asam jawa (*Tamarindus indica*), duku (*Lansium domesticum*), durian (*Durio zibethinus*), jambu air (*Syzygium aqueum*), kedondong (*Spondias dulcis*), kemiri (*Aleurites moluccana*), mangga (*Mangifera indica*), melinjo (*Gnetum gnemon*), Nangka (*Artocarpus heterophyllus*), petai (*Parkia speciosa*), petai cina (*Leucaena leucocephala*), dan sirsak (*Annona muricata*). Kulit pohon asam jawa mampu menyerap merkuri sebesar 74,4 µg-DW; mangga sebesar 71,9 µg-DW, dan jambu air sebesar 60,9 µg-DW, ketiga

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jenis tanaman ini mampu menjerap merkuri lebih tinggi jika dibandingkan jenis lainnya. Hasil interpolasi persebaran merkuri di udara menunjukkan merkuri di atmosfer bergerak dari titik pemurnian ke arah tenggara lokasi pemurnian, dan dipengaruhi oleh arah dan kecepatan angin. Besarnya merkuri yang terkumpul pada kulit pohon dipengaruhi oleh kekasaran kulit.

**Kata Kunci** : emas, interpolasi, merkuri, kulit pohon, tanaman MPTS tambang

## ABSTRACT

### ATMOSPHERIC MERCURY POLLUTION ON TREE BARK OF MPTS PLANT, IN BUNUT SEBERANG VILLAGE, WAY RATAI DISTRICT, PESAWARAN REGENCY, LAMPUNG PROVINCE

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Gold refining activities around community settlements cause environmental pollution due to the use of mercury. Mercury can easily evaporate and blow with the wind. Cultivated MPTS could be contaminated by mercury that evaporates in the atmosphere. This study aims to determine mercury contamination in the bark of multi-purpose trees species (MPTS) and map the distribution of mercury contamination in the air through the level of contamination in tree bark. The study was conducted in Bunut Seberang Village, Way Ratai District, Pesawaran Regency, Lampung Province, and at the University of Lampung Arboretum in March 2021. Sampling was carried out using the purposive sampling method at both research locations. The sample is tree bark with a size of 10 x 10 cm, it taken as high as Diameter Breast Hold (DBH). The samples were then processed and analyzed using atomic absorption spectroscopy (AAS) to determine the mercury content and analyzed using a Scanning Electron Microscope – Energy Dispersive X-ray (SEM-EDX). The mercury content is then interpolated using ArcGIS 10.6 to determine the distribution of mercury in the atmosphere. The results showed that there were 13 types of MPTS plants can accumulate mercury in the atmosphere, namely, *Persea americana*, *Tamarindus indica*, *Lansium domesticum*, *Durio zibethinus*, *Syzygium aqueum*, *Spondias dulcis*, *Aleurites moluccana*, *Mangifera indica*, *Gnetum gnemon*, *Artocarpus heterophyllus*, *Parkia speciosa*, *Leucaena leucocephala*, and *Annona muricata*. *T. indica* tree bark is able to absorb mercury by 74.4 µg-DW; *M. indica* at 71.9 µg-DW, and *S. aqueum* at 60.9 µg-DW, these three types of plants are able to absorb mercury higher compared to other types. The results of interpolation of the distribution of mercury in the atmosphere showed that mercury in the atmosphere moves from the purification point to the southeast of the purification location, and is influenced by

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wind direction and speed. The amount of mercury that collects in the bark of trees is affected by the roughness of the bark.

Keyword : gold, interpolation, mercury, MPTS plants, mining, tree bark