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**Monitoring of the Airborne Pollen Diversity at the University of Sri Jayewardenepura Premises**

**Abeyrathne, U.K.G.<sup>1</sup>, Munasinghe, M.L.A.M.S.<sup>1,2\*</sup>**

<sup>1</sup>*Department of Botany, University of Sri Jayewardenepura, Nugegoda, Sri Lanka*

<sup>2</sup>*Centre for Plant Materials and Herbal Products Research, University of Sri Jayewardenepura,*

*Nugegoda, Sri Lanka*

*\*[mayuri@sci.sjp.ac.lk](mailto:mayuri@sci.sjp.ac.lk)*

**Abstract**

Studying airborne pollen grains and other microscopic organic particles present in the atmosphere is critical in understanding pollen and spore dispersion, and their seasonal distribution. This has substantial implications for environmental and allergenic research studies. In this study, pollen sampling was carried out using a self-modified gravimetric (Durham type) pollen sampler for six months, from July 2022 to December 2022. The pollen trap was placed and two microscopic slides were installed at a height of 1m above ground level at the garden of the Department of Botany, University of Sri Jayewardenepura, to investigate the airborne pollen species within the premises. One microscopic slide was coated with Vaseline, while the other was coated with Glycerin jelly with basic fuchsin. The slides were replaced weekly to analyse the quantity of pollen dispersed around the sampler. The collected pollen grains were mounted with glycerin jelly with basic fuchsin and observed under a light microscope using 400x magnification. Pollen concentrations were obtained by counting ten longitudinal transects, which resulted in the screening of about 23.5% of the total surface of the slide and converted to pollen grains/cm<sup>2</sup> of the implication surface of the slide. In this study, 639 pollen grains/cm<sup>2</sup> were recorded in a microscopic slide coated with Glycerin jelly with fuchsin while 676 pollen grains/cm<sup>2</sup> were recorded in a slide coated with Vaseline. As the most abundant pollen type, pollen grains of Poaceae (including genera of *Sporobolus*, *Chrysopogon*, *Heteropogon*, *Eleusine*, etc.) comprised 62.44% of the total pollen content and the highest count occurred in December, with 30.3% of the total pollen content in the Glycerine slide. In the Vaseline slide, Poaceae showed 65.98% of the total pollen content and the highest number of Poaceae pollen in December (37.9%). Pollen type A (12.6% and 10.8%), and *Casuarina equisetifolia* (3.7% and 2.8%) were the other dominant species in both Glycerin and Vaseline media slides, respectively. *Acacia auriculiformis*, *Azadiracta indica*, *Hibiscus rosa-sinensis*, *Syzygium spp.*, *Dendrophthoe sp.*, *Alternanthera sp.*, and *Eleocarpus serratus* and genera of family Asteraceae, Menispermaceae and Arecaceae, were the other identified pollen types recorded in the period of study. The highest number of pollen grain concentrations from the total pollen contents (Glycerine sample: 41.47% and Vaseline sample: 50.16%) were recorded during December. This study helps to extend the knowledge of airborne pollen diversity at the University premises of Sri Jayewardenepura.

**Keywords:** Aeropalynology, Airborne pollen, Gravimetric sampler, Pollen diversity, Pollen concentration