

ANALYSIS AND IDENTIFICATION OF AMOEBAE IN
BIOTIC COMPONENTS FROM ATMOSPHERIC
PARTICULATE MATTER

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FAKULTI SAINS DAN TEKNOLOGI
UNIVERSITI MALAYSIA MERBEGGANTU
2007

ANALYSIS AND IDENTIFICATION OF AMOEBAE IN BIOTIC COMPONENTS
FROM ATMOSPHERIC PARTICULATE MATTER.

By

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Research Report submitted in partial fulfillment of
the requirements for the degree of
Bachelor of Science (Biological Sciences)

Department of Biological Sciences
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UNIVERSITI MALAYSIA TERENGGANU
2007

1100051118

This project should be cited as :

Azlan, M.D. 2007. Analysis and Identification of Amoebae in Biotic Components from Atmospheric Particulate Matter. Undergraduate thesis, Bachelor of Science in Biological Sciences, Faculty of Science and Technology, Universiti Malaysia Terengganu. Terengganu. 31p.

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**PENGAUKUAN DAN PENGESAHAN LAPORAN
PROJEK PENYELIDIKAN I DAN II**

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ACKNOWLEDGEMENTS

Alhamdulillah, the greatest thanks to Almighty Allah S.W.T for His compassion and clemency, I have almost completed my Final Year Project report although many trials and obstacles that I had to go through.

Sincere thank to my supervisor, Assoc. Prof. Dr Nakisah Mat Amin for her supervision, assistance, comments and guidance for my project. I would like to express my sincere thanks to Che Ku Naiza, Biological Science Officer for her cooperation, Pn. Zarina and all the lab assistance that help me in this project. Sincere thanks to all my friends that help me along the way.

I would like to thank Universiti Malaysia Terengganu (UMT) for giving me a chance to do this project.

Lastly, I would like to thank my parents Maimunah Mohd Khalid and Mohd Dahari Shahrudin and my brothers and sisters who had given me much support.

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LIST OF ABBREVIATIONS

m^3	-	cubic per meter
NNA	-	Non nutrient agar
μm	-	micrometer

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ABSTRACT

The possibility of breathing pathogenic and free-living protozoa could contribute to human allergies and diseases. Determination of what species of protozoa present will assist the appropriate authority to take the action accordingly. Analysis and identification of protozoan cysts as biotic components in air sampled in the near surface tropospheric air of Kuala Terengganu was conducted using an air filter TSP (Total Suspended Particulates) and PM 10 (Particulate Matter). The cellulose filter membrane was used to filter the air and was placed on the ground level during the sampling. The air filter system was left operated for 24 hours for three days. Six sampling sites were chosen. They were UMT's campus near the guard post, UMT's hostel (girl), Sultan Mahmud Airport, Politeknik Kuala Terengganu, Maktab Perguruan and Police Department Headquarters in Kuala Terengganu. The filter membrane was cut into square shape 1cm x 1cm and placed on non-nutrient agar using sterile scissors. One to 2 drops of *E.coli* was used as a source of food for amoebae. Only one sampling site was positive and contained the amoeba cysts, that is at UMT's hostel. The size of the trophozoite is about 11 μm and the morphology is amoeboid like shape. It moves by means of flowing cytoplasm, usually with the production of pseudopodia. The species was identified tentatively as *Vahlkampfia* sp. The size of the cysts is 8.75 μm . This study indicates that free-living amoeba do exist in the atmosphere of Kuala Terengganu.

ANALISIS DAN IDENTIFIKASI KOMPONEN BIOTIK DARI PARTIKEL

ATMOSFERA

Abstrak.

Kemungkinan menghirup udara mengandung protozoa yang patogen boleh mengakibatkan kesan alergik dan penyakit. Penentuan spesies protozoa yang ada boleh membantu pihak tertentu mengambil tindakan seterusnya. Analisis dan identifikasi sista protozoa sebagai komponen biotik di udara telah dijalankan di Kuala Terengganu dengan menggunakan penapis udara jenis TSP (Total Suspended Particulate) dan PM10 (Particulate Matter). Penapis cellulose membran telah digunakan. Penapis udara tersebut telah diletakkan di atas tanah. Penapis udara tersebut beroperasi selama 24 jam selama 3 hari. Terdapat 6 lokasi persampelan dijalankan, antaranya ialah di kampus UMT (pondok keselamatan), hostel UMT, Lapangan Terbang Sultan Mahmud, Politeknik Kuala Terengganu, Maktab Perguruan dan Balai Polis Kuala Terengganu. Hanya 1 lokasi persampelan ada keputusan positif untuk sista amoeba iaitu asrama UMT. Filter membran telah digunting dengan menggunakan gunting yang telah disteril dengan berbentuk segiempat berukuran 1cmx1cm. 1 hingga 2 titik *E.coli* digunakan sebagai makanan kepada amoeba tersebut. Non nutrient agar telah digunakan untuk membesarkannya. Saiz trophozoit adalah lebih kurang 11 μm dan morfologinya seperti bentuk amoeboid. Ia bergerak menggunakan jalinan sitoplasma dan penghasilan pseudopodia. Spesies dikenalpasti sebagai *Vahlkampfia inornata*. Saiz sista amoeba berukuran 8.75 μm . Projek ini menekankan bahawa sista amoeba wujud di udara Kuala Terengganu.