SYNTHESIS OF THE ZINC OXIDE NANOPARTICLES BY SOLUTION METHOD

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Final Year Project Report Submitted in Partial Fulfilment of the Requirements for the Degree of Bachelor of Science (Hons.) Physics in the Faculty of Applied Sciences Universiti Teknologi MARA

JULY 2014

ACKNOWLEDGEMENTS

Assalamualaikum wbt.

In the name of Allah, the Most Gracious and the Most Merciful, I thank Him for His faithfulness in giving me the strength, patience and determination to complete my Final Year Project. I also wish to give my sincere gratitude to many great people for their guidance and encouragements in giving me support to carry out this project successfully.

First of all, my heartfelt thanks goes to my supervisor, Miss Norihan Bt Yahya for her esteemed supervision, incessant support, inspiration and constructive criticism throughout my project work. I would like to express my deepest thanks also to Dr Kamisah Bt Mohamad Mahbor, my co-supervisor for her assistance, guidance and constructive criticism during completing my report.

I accord my thanks to En Fauzi, lab assistant of Chemistry, for providing me with all necessary facilities during the project work.

I would like to take the opportunity to thank UMP and UM, for allowing me to do XRD and SEM in their university.

Finally, I would also express my deep sense of gratitude to my parents and family members for their encouragement and support throughout, which always inspired me. Last but not least, a big thanks to those who help me in completing this project whether in directly or indirectly. Thank you.

Mohd Nazrul Baqi Bin Ramli

TABLE OF CONTENTS

ABSTRACT

SYNTHESIS OF THE ZINC OXIDE NANOPARTICLES BY SOLUTION METHOD

Zinc oxide (ZnO) nanoparticles were successfully synthesized by solution method of zinc acetate dihydrate and potassium hydroxide at low temperature of 60 °C. The zinc oxide solution that obtained was purified by using washing process. The ZnO powders obtained were annealed at different temperatures (500 °C, 600 °C and 700 °C). The effect of annealing temperature on the crystal structure, size and morphology of the ZnO nanoparticles were characterized using X-ray diffraction (XRD) and scanning electron microscopy (SEM). XRD results show that all the peaks obtained were corresponding to the hexagonal wurtzite structure. Annealing temperatures influences the particle size and the morphology of the ZnO nanaoparticles. The particle size was increased from 37.6 nm to 55.3 nm as the temperatures increased. The increasing of temperatures changed the morphology of the ZnO nanoparticles from spherical shape to hexagonal shape.