

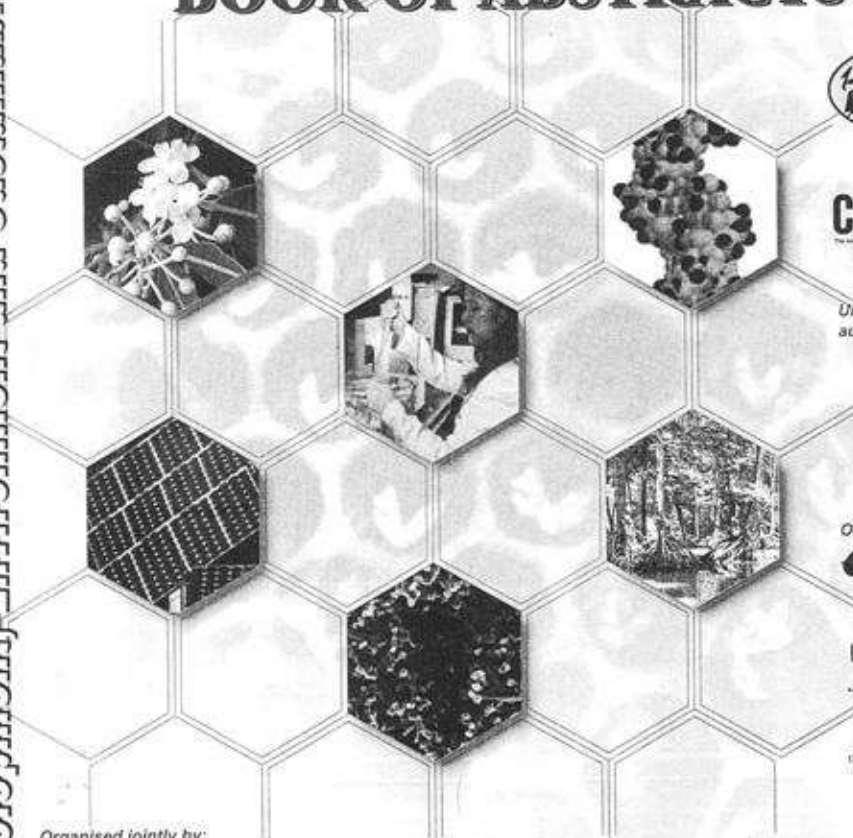
Chemistry for Development, Environment and Sustainability in Asia

12TH ASIAN CHEMICAL CONGRESS (12ACC)

August 23 – 25, 2007

Putra World Trade Centre, Kuala Lumpur, Malaysia

BOOK OF ABSTRACTS



Chemical 2007
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The New South Instrumentation Congress, Technology & Instrumentation Exhibition

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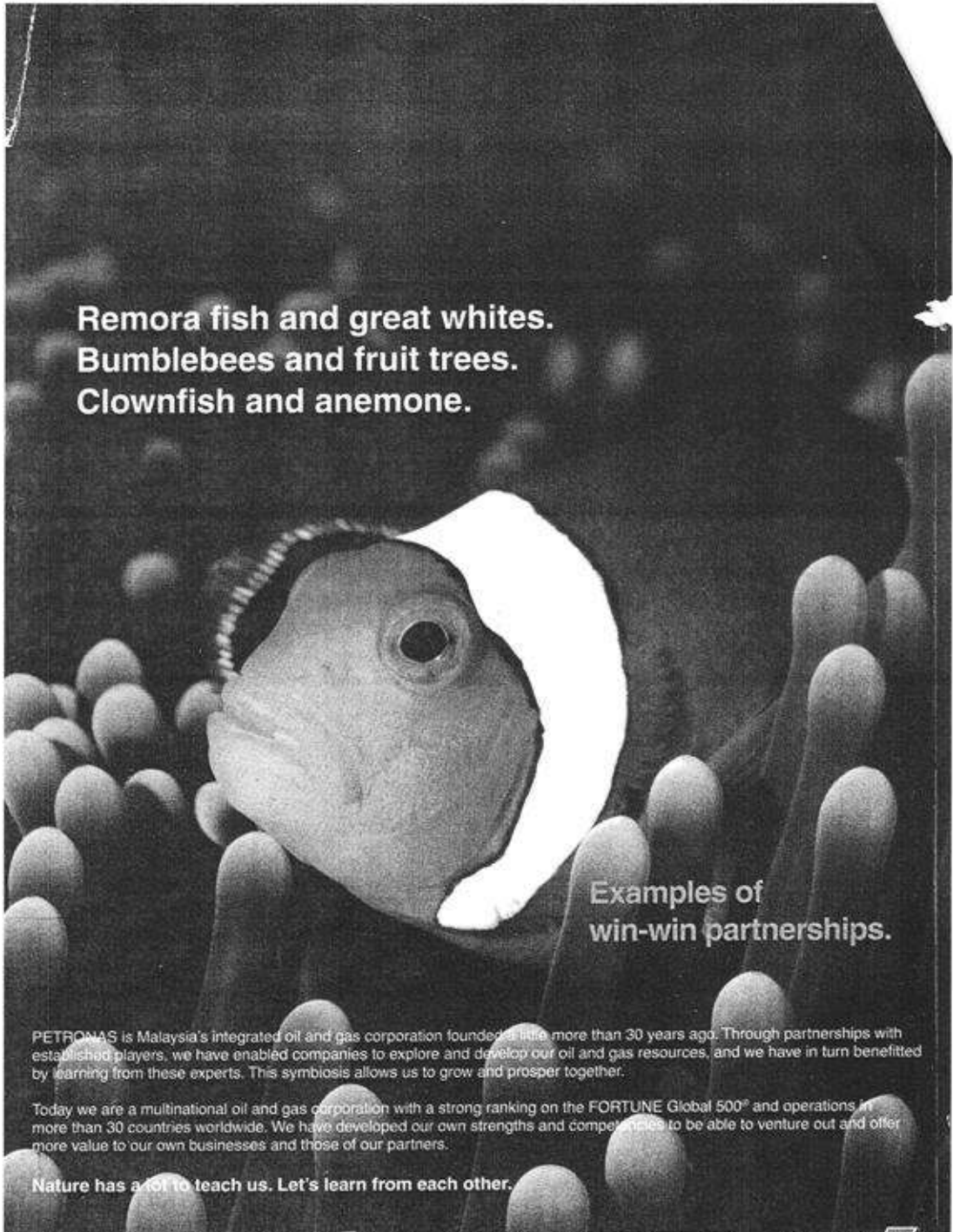
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A black and white photograph of a clownfish swimming in an anemone. The clownfish is the central focus, with its white body and dark stripes clearly visible. The anemone's tentacles are numerous and surround the fish, creating a textured, organic background. The lighting is dramatic, highlighting the fish's form against the darker background of the anemone.

**Remora fish and great whites.
Bumblebees and fruit trees.
Clownfish and anemone.**

**Examples of
win-win partnerships.**

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EGC 096 (Poster)

**STRUCTURAL AND SURFACE PROPERTIES
OF PRECIPITATION DERIVED ZINC OXIDE
AND ITS DEGRADATION TO METHYL
ORANGE**

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Zinc oxide precursor was prepared by the chemical precipitation resulting from the reaction of zinc acetate dihydrate with ammonium hydrogen carbonate. The zinc oxide powder namely ZnO400, ZnO600 and ZnO800 was obtained by subsequent calcination of the precursor at 400, 600 and 800°C. The materials were characterized by FTIR, TGA, SEM, XRD methods and by its surface area using BET methods. The calcination products revealed hexagonal structure. With increasing calcinations temperature, the average crystallite size increased while the surface area decreased. ZnO400 exhibits the smallest average crystallite size (49 nm) and the highest surface area (11 m²/g). Evaluation of photodegradation performance against methyl orange as model contaminant demonstrated considerable efficiency. The results indicate that the photodegradation process is influenced by the surface area of sample. The addition of oxidant, H₂O₂, however gave a negative impact on the photodegradation efficiency.

EGC 097 (Poster)

**COMPLETE ELECTROCHEMICAL
DECHLORINATION OF CHLOROBENZENES
IN THE PRESENCE OF NAPHTHALENE
MEDIATOR**

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Electrochemical dechlorination of chlorobenzene in organic solutions was studied. Electrolysis of chlorobenzene in acetonitrile solution in a one-compartment cell fitted with a platinum cathode and a zinc anode at 60 mA/cm² and 0°C was found to be

the optimum conditions, which gave complete dechlorination. However, similar result could not be achieved when applying this condition to 1,3-dichlorobenzene and 1,2,4-trichlorobenzene. We found that the use of naphthalene which reacts as a mediator in the system could accelerate the reduction and gave complete dechlorination of those chlorobenzenes. Moreover, in the presence of naphthalene the reaction time could be shortened by half compare to the dechlorination in the absence of naphthalene.

EGC 098 (Poster)

**PERFORMING LABORATORY
EXPERIMENTS FOR THE CURRICULUM OF
PRINCIPLES OF ORGANIC CHEMISTRY,
USING THE TECHNOLOGY OF GREEN
MICROSCALE CHEMISTRY IN THE
KINGDOM OF SAUDI ARABIA**

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Medras³, Hassan A. Albar⁴

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University (Al Taif), ³ Faculty of Education-King
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Out of the point of cooperation between green chemistry school at western region of Saudi Arabia, with Radmaste center in South Africa and the UNESCO. We applied the technology of microscale chemistry in performing the experiments of the practical curriculum of the principles of general organic chemistry including the process the filtration, simple distillation, crystallization, chromatographic separation, element test, detection of functional groups in organic compounds, and preparation of some esters by reflux. In addition, the preparation of acetylene and ethylene gases using the tools of microscale chemistry. Radmaste center has provided us by modern microscale tools. The Arabic edition of the curriculum, sponsored by UNESCO, is available to us. It will be prepared in its final shape to be published in the website of the organization which is concerned with the practical curricula of green microscale technology. Ola Abu Ali, Master degree student, Hanadi Medras, PhD student, and the lecturer Taghreed Al Sufyani in Al Taif University have performed most of the above mentioned experiments using the Arabic edition for practical curricula sponsored by UNESCO, by the tools purchased from Radmaste center in South Africa. The experiments were performed easily and successfully in a relatively short time in comparison with the traditional laboratory. In addition, to the higher safety profile of the latter and to the cost of