

**CURRENT RESEARCH
AND DEVELOPMENT IN
BIOTECHNOLOGY
ENGINEERING
AT IIUM**

VOLUME I

Editors:

Suleyman Aremu Muyibi
Mohammed Saedi Jami
Zaki Zainudin



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(VOLUME I)

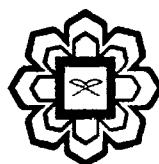
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CHAPTER 10

MORINGA SEED OIL EXTRACTION AND CAKE PROCESSING: FROM BENCH TO COMMERCIAL PRODUCTION OF ALTERNATIVE WATER TREATMENT CHEMICALS FOR DEVELOPING COUNTRIES

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ABSTRACT

The state of the art in *Moringa* seed oil extraction and cake processing are reviewed with particular reference to developing commercial production plants for these products in developing countries. *Moringa* is a potentially economic plant that could help developing countries address health and nutritional issues of their populations. The cake after oil extraction has potential as an environmentally friendly bio-flocculants for water treatment, as well as a rich organic fertilizer. The economics of the various industrial processes involved have been analysed and compared and the most viable options identified. There is still the need for further research towards improving the current extraction processes to attain higher yields as well as in the development of genetically improved species with higher oil content. These would greatly advance further the overall economic viability of the project.

Keywords: *moringa* seed oil, seed cake, bio- flocculants, extraction

INTRODUCTION

Moringa oleifera (herein referred to as *Moringa*) is a small and fast growing tree adapted to arid, sandy conditions. Its long, drumstick shaped pods that contain its seeds characterizes the species. Within the first year of growth, *Moringa* tree has been shown to grow up to 4 meters and can bear fruit within the same first year (Mbeza et al, 2002). Practically every part of the tree is beneficial in some way, which is of great importance in areas such as rural Nigeria, where people have a direct dependence on trees, crops and animals for their livelihood. In agro-forestry, *Moringa* can function as windbreaks for erosion control, as live fences, as an ornamental tree or intercropped to provide semi-shade to species requiring less direct sunlight (Internet, 2006a).