

MORINGA OLEIFERA MIRACLE TREE FOR GREEN TECHNOLOGY: A REVIEW

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Abstract

Moringa oleifera is a native tree of the sub-Himalayan parts of Northwest India. It is now widely cultivated across tropical belt areas. It is generally used in a number of developing countries as a vegetable, a medical plant, and a source of vegetable oil. The fresh leaves are rich in vitamins A and C. Leaves extract has therapeutic potential for the prevention of many diseases. *Moringa oleifera* seeds have been found to be a natural coagulant, flocculant, softener, disinfectant, and sludge conditioner, organics and heavy metal remover in water and waste treatment. Extracted seed oil is good edible oil, lubricant oil, and as feedstock for biodiesel. It can be used for soap making, perfume, and cosmetics. The seeds husk and pods left over can be steamed activated to produce high quality activated carbon. The residual solids left from oil extraction and filtration process can be considered as animal feed with high nutritive value, and as soil fertilizer. The trunk is used in the paper industry. The roots are used for medicinal purposes. Therefore, it is very important for green technology to pay attention to this tree which can produce environmentally friendly products with almost zero waste.

Keyword: *Moringa oleifera*, water treatment, medicine, bioproducts, biodiesel.

1. Introduction

Moringa oleifera (M.O) is a native tree of the sub-Himalayan parts of Northwest India, Pakistan and Afghanistan. It is now widely cultivated across Africa, South America, most part of South – East Asia for example: Malaysia, Indonesia, Thailand (Muyibi, 1998), The Philippines, Cambodia, Middle East, and Central America, and the Caribbean islands (Tsaknis et al., 1999), Brazil (Silva et al., 2010) mainly as a result of its introduction by Indian migrants who valued the young green pods as vegetables and by the British in former colonies as an attractive ornamental tree (McConnachie et al., 1999). The flowers and fruit (which are called “pods”) are used as a vegetable, and the trunk is used in the paper industry (Tsaknis et al., 1999). It is also known as a tropical plant containing an active coagulating compound in the seeds, and dry M.O. seeds have been found to be a natural coagulant in the treatment of turbid water in various countries (Jahn, 1984; Muyibi & Evison, 1995; Ndabigengesere & Narasiah, 1995; McConnachie et al., 1999).