

CURRENT RESEARCH AND DEVELOPMENT IN BIOTECHNOLOGY ENGINEERING AT IIUM

VOLUME II

Editors:

Ibrahim Ali Noorbatcha
Hamzah Mohd. Salleh
Mohamed Elwathig Saeed Mirghani
Raha Ahmad Raus



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**Department of Biotechnology Engineering
Faculty of Engineering
International Islamic University Malaysia**



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CHAPTER 3

SCREENING AND EVALUATION OF ANTICANCER PROPERTY IN MANGO FRUIT *MANGIFERA INDICA*

Azura Amid, Irwandi Jaswir and Muhd. Ezza Faiez Othman

Department of Biotechnology Engineering, Faculty of Engineering,
International Islamic University Malaysia, P.O. Box 10, 50728 Kuala Lumpur, Malaysia

ABSTRACT

Cancer is a disease which known throughout the world. There are many available commercial and alternative treatments to treat cancer. Mango (*Mangifera indica* L.) is one the popular tropical fruits found in Malaysia. Mango is a wide variety that can easily be found in this country. It is known for its vibrant flesh colour, juicy texture, sweet flavour, vitamins and minerals. This study aimed to evaluate the anticancer property of mango variety that available in Malaysia (*Siamese, Honey, Kuinin and Chokonan*) towards human breast cancer cell (MCF-7). Based on the result, it turned out that Kuinin has the lowest IC₅₀ value, 300 µg mL⁻¹ compared to other mango variety, suggesting that Kuinin as fruit has potential in preventing breast cancer.

Keywords: MCF-7 cell lines, Vero cell lines, SRB, mango fruit, taxol

INTRODUCTION

Mango (*Mangifera indica* L.) is one of the popular tropical fruit in Malaysia besides mangosteen, rambutan, durian, papaya, watermelon and many more. It is common in this country that the used of this fruit is for food consumption and product such as juices, jams, pickles, purees and even in chocolate as additional taste. Mango is a seasonal fruit and it varies according to its variety. It is also easily purchase at nearby markets during seasonal time.

Mango is rich in a variety of phytochemicals (Ajila, Naidu and Prasada, 2007b) and nutrients. Mango contains various classes of polyphenols, carotenoids, and ascorbic acid demonstrating different health-promoting properties, mainly from their antioxidant activities (Talcott et al., 2005). β-carotene is the most abundant carotenoid in several cultivars. The nutritional value of mango as a source of vitamin C and provitamin A should also be emphasized (Rocha Ribeiro et al., 2007).

β-carotene in mango is believed to be the active elements in anticancer treatment and anti-proliferation (Hana et al., 2010). Cancer cells are the free radicals in the living organisms cause oxidative damage to different molecules such as lipids, proteins, nucleic acids and these