CURRENT RESEARCH AND DEVELOPMENT IN BIOTECHNOLOGY ENGINEERING AT IIUM

VOLUME III

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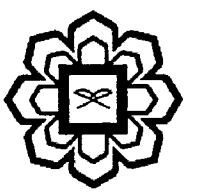

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CHAPTER 4

OPTIMIZATION OF HEAT STERILIZATION ON MANGO FRUIT (*MANGIFERA INDICA*) PUREE AND EFFECTS TOWARDS CANCER TREATMENT

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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. Besides that, mango also contains anticancer and antiproliferation properties. Siamese mango was selected for optimization of puree sterilization. The Design Expert software version 6.0.8 was used to design the experiment to optimize puree sterilization conducted using Central Composite Design with to factor which are variation of temperature (85°C-95°C) and time (1-16 minutes). The optimum condition for the sterilization treatment was at 90°C and 30 seconds holding time.

Keywords: MCF-7 cells, Vero cells, heat treatment, mango fruit, taxol drug

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, 2007a) 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)