A STUDY ON CLINICAL ANALYSIS OF FIBER ENRICHED MILK TABLET

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ABSTRACT

Fiber enriched milk tablet is a supplement that produced to overcome the malnutrition problem that happen to the children. It is formulated from the fiber source such as vegetables and fruit juice that mixed together with either cow's milk. The vegetables that used are spinach and carrot. The fruits that we used are mango, watermelon and also dragon fruit. The reason of why the vegetables and fruits are chosen is because they are they are rich in nutrition especially the vitamin that is vital to the health. The milk is mixed with the fruit and vegetables juice because milk is rich with nutrients such as calcium and protein that is essential for growing and building a strong bone. The addition of maltodextrin into the mixture as the carrier during spray dryer is vital because the powder will not stick to the wall of the spray dryer chamber and the wall of cyclone. The effect of addition of maltodextrin is studied along this project. Through some journal reading, it is said that the maltodextrin will produce a strong and high tensile strength tablet. The effect of different method of drying such as freeze drying and spray drying also studied in this research where the inlet temperature of spray dryer the mixture will be spray dried in three temperatures which are 100˚C,120 ˚C, and 140 ˚C while freeze dry the temperature was constant at -60 ˚C. Several tests were done towards the products which were the dissolution test, nutritional content test and heavy metal content test. For dissolution test, it is carried out in four different dissolution medium such as distilled water (at 27°C), simulated saliva, phosphate buffer pH 6.8 (mimic intestinal fluid (IF)) and also hydrochloric acid (HCl) buffer pH 1.2 (mimic gastric fluid (GF)) at 37.5°C. The dissolution rate is higher in gastric fluid which is not followed as the theory of the dissolution of weak acids material. The nutritional content of the tablet is determined so that the effect of manufacturing process can be studied and it can be labeled in packaging and acknowledge the consumer. The heavy metal test also conducted towards the product to detect any harmful potential of the product. The result of the heavy metal contained in the product is less than 0.07 mg/kg arsenic, less that 0.03 mg/kg of lead , less than 0.004 mg/kg cadmium, less than 0.01 mg/kg of mercury and less

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TABLE OF CONTENTS

CHAPTER ONE

INTRODUCTION

1.1 Research background

Dietary supplement is one type of nutrition source that has been consumed by people nowadays. Usually, the product is produced in terms of chewable tablet that is more friendly to the consumer especially children. It is a product that has properties of a solid food product forms which is easy to consume, has a good taste and nice chewing property. Other than that, it befits to keeping the stability of active ingredients of the product and increasing the bioavailability (Jinhong Wu 2012). Recently, the chewable tablet is very useful in the preparation of leisure and health food such as oats dietary fiber chewable.

The fiber enriched milk tablet is a type of dietary supplements that will be useful in overcoming the malnutrition disease in children. The basic concept of producing the fiber enriched milk tablet is combining nutrients in milk and fruit (as a source of fiber) in a tablet to reduce the malnutrition disease in children. The nutrition in the tablet can be absorbed by the children by consuming it as a chewable tablet just like the chocolate or sweets. It will attract the children to consume healthy food and get enough nutrition by consuming the tablet.

In this research, the fiber enriched milk tablet is produced from the cow's milk and five types of fiber source which are carrot, watermelon, spinach, dragon fruit and also mango. An amount of maltodextrin is added to the mixture for carrier during the drying process and also binder for the fiber enriched milk tablet. Some tests will be carried out for the tablet to see the nutritional content, heavy metal content and also the percent dissolution of the tablet in four types of medium which are the distilled water,