



CHAPTER I

INTRODUCTION

Cancer is at present the third leading causes of death among Thai people, but ranks as the first among Bangkok residence (1-6). Several chemicals, bacteria and certain natural substances are among the suspected carcinogens in humans (7). The chlorinated hydrocarbon insecticides are chemicals widely used for Thailand's economic development in the agriculture sector. The Department of Agricultural Affairs, Ministry of Agriculture and Cooperatives had recommended the use of these chemicals with certain crops, for example the cotton plant, to prevent and destroy pest (8-13). During the years 1978-1987, the recorded agricultural and public health use of the following organochlorine insecticides : aldrin, benzenehexachloride, chlordane, DDT (dichlorodiphenyltrichloroethane), dieldrin, endrin, heptachlor and lindane amounted to 6,760,000 kg (14). These insecticides have been reported to be carcinogenic in experimental animals. (15-16). The chlorinated hydrocarbons are persistent insecticides. They have good lipid solubility and are resistant to heat, sunlight and microbes. These properties make them persist in the environment and subsequently enter the food chain (17). Study in Thailand reveals that sediment, soil, water, aquatic animals and

agricultural products are contaminated with these chemicals. Direct and indirect exposure enable the organochlorine insecticides to accumulate in the fat and blood of Thai people, and to be excreted into maternal milk (18-21). The possible carcinogenicity of chlorinated hydrocarbon insecticides has been implicated by some findings that many cancer patients are agriculturists. From 1979 to 1982, approximately one-third of cancer patients receiving treatment at the National Cancer Institute in Thailand are farmers. Moreover, data collected from the above institute during the years 1986-1988 by fifth-year pharmacy students supervised by Associate Professor Dr. Vilailag Im-Udom, Faculty of Pharmaceutical Sciences, Chulalongkorn University show that of the 297 cancer patients, 222 cases or 74.75% are agriculturist (22).

The major objective of this study is to explore the carcinogenic risk of organochlorine insecticides exposure in humans by analysing their concentrations in blood samples obtained from cancer patients and normal subjects.