CHAPTER 1

INTRODUCTION

This chapter explains about the background of study, problem statement, research objectives, research questions, scope of study, significant of study, conceptual and operational definition about this topic. This chapter provides an idea generally on the field of study which is focusing on the respiratory health problems among workers at bakery. As a researcher, he or she should know detail about his study so it will easier for him/her to proceed with the research. This can be fulfilled by referring a lot of sources such as articles, journals and also from the previous study as a guide.

1.1 BACKGROUND OF STUDY

Many studies have shown that exposure to flour dust is associated with development of respiratory symptoms and varying degree of reduction in lung function (Ahmed et al., 2009). However, he claimed that these also depend on work environment and duration of exposure. Respiratory symptoms and lung function impairment are probably the most widely studied among organic dust-associated health effects. Bakers and pastry cookers are commonly exposed to flour dust and other aeroallergens during the food making process from the flour. Many respiratory effects have been described among bakers, such as chronic bronchitis, pneumonia and impairment of pulmonary function.

In 1999 the American Conference of Governmental Industrial Hygienists (ACGIH) proposed a threshold limit value (TLV) of 0.5 mg/m³ for flour dust with a sensitization notation. As part of this study, a relationship between flour dust concentrations and respiratory symptoms were examined. The prevalence of cough,
phlegm, difficulty to breathe, and respiratory symptoms were higher in subject group, also during an 8-hour shift ventilatory function tests, it was demonstrated that respiratory capacities (FVC, FEV₁, PEF) in the flour workers decreased, however, there was no significant statistical difference between case and control groups. Some researcher stated that daily work related respiratory symptoms were significantly increased in cases compared with controls. Bakery workers who worked at prolonged time will significantly have lower FEV₁ and FVC. An exposure to flour dust causes increasing in work related respiratory symptoms in bakery workers who work for eight hours or more. In these workers prolonged exposure to flour dust causes significant reduction in lung function as measured by FEV₁ or FVC, percent predicted.

Many studies have shown that flour dust exposure causes respiratory symptoms and is associated with impairment of lung function (Bulat et al., 2004). Ahmad also claimed flour dust is an asthma-agent and is known to cause sensitization, allergic rhinitis and occupational asthma amongst bakers and millers. Flour dust can also act as an irritant and may give rise to short-term respiratory, nasal and eye symptoms, or it may provoke an asthma attack in individuals with pre-existing disease.

However, there is a lack of data regarding exposure among bakery’s or pastry’s worker, although respiratory conditions have been described in this young population. In the framework of a prospective study aiming at assessing on how non asthmatic bakery and pastry apprentices may develop airway inflammation in their training, an exposure study was conducted to assess personal exposure to flour dust and to identify the tasks that involve contact with flour in the bread-making and pastry confectioning processes. Measuring and comparing diseases pattern, and respiratory symptoms experienced among workers are helpful in reducing illnesses, improving working condition, increasing productivity, determining healthcare benefits and controlling cost.

1.2 PROBLEM STATEMENT

Bakeries can be a high risk working environment in relation to many lung diseases. The rise of bakery products consumption in Malaysia is in line with the population’s growing affluence. Flour dust and enzymes in improvers are hazardous
substances that contributed to health of the workers in the industry. Exposure to flour dust and enzymes contained in improvers may also provoke an asthmatic attack in individuals with pre-existing asthma. High airborne flour dust levels are generated when flour is hand dusted or sprinkled, brushed, blown or vibrated. The main emphasis is to reduce exposure at source by promoting the careful handling of flour and avoiding practices that cause flour to become airborne.

Respiratory health effects have been documented in workers exposed to a variety of dusts in small and large-scale industries, which generate dust during their production process. Many studies have shown that flour dust exposure will cause respiratory symptoms and is associated with impairment of lung-function (Ahmed et al., 2009). Flour dust also is an asthma-agent and is known to cause sensitization, allergic rhinitis and occupational asthma amongst bakers (Elms et al., 2004). Workers who were directly exposed to the dust from flour, flavors and other preservatives could suffer the symptoms which are related to respiratory problems. Exposure from those substances also could create lung function impairments among the workers which may lead to many lung diseases if those substances exist at their workplace. The higher exposure of flour dust also will increase the prevalence of respiratory symptoms among the workers and decrease the lung volumes from predicted and normal volumes.

1.3 RESEARCH OBJECTIVES

The purpose of this study is to examine the respiratory symptoms and lung function impairment among two groups who are the workers in flour-mill itself. The objectives of this study are:

1.3.1 To measure concentration of PM$_{2.5}$ exposed by the workers.
1.3.2 To observe the activities carried out in the bakery that affects the concentration PM$_{2.5}$.
1.3.3 To measure level of lung functions impairment among bakery workers.
1.3.4 To measure respiratory symptoms experienced among workers at bakery.
1.3.5 To identify the relationship between concentration of PM$_{2.5}$ and lung function impairment of workers.