

CHAPTER 1

INTRODUCTION

1.1 Background of Study

Volvariella volvacea (*V. volvacea*) mushroom, also commonly known as paddy straw mushroom or straw mushroom is an edible fungus that can be found in tropical and subtropical areas. Among 30 industrial scale cultivated mushroom, *V. volvacea* mushroom ranks fifth in terms of annual worldwide production and is very popular in southern China, Thailand, Malaysia and the Philippines (Wang *et al.*, 2008). This indicates there is high demand for mushroom production globally.

V. volvacea mushroom is categorized as a health food due to its medicinal and dietary characteristics (Bilal *et al.*, 2010). In fact, it can produce immunosuppressive proteins, immunomodulatory lectins and antitumour polysaccharides (Hsu *et al.*, 1997). Furthermore, *V. volvacea* is widely used in the cultivation of agro-industrial waste because of its cellulolytic characteristics, but the low transformation into mushroom fruiting bodies from growth substrate has restricted its growth on lignocellulosic residues (Ding *et al.*, 2006).

Malaysia, a country with tropical climate averaging temperature from 23 – 35 °C and relative humidity of 80 – 90 %, is a warm and humid country which only allow a handful species of mushroom to grow. Among them are grey oyster, shiitake, ganoderma, white oyster and paddy straw where the optimum growth condition and fruiting body formation for *V. volvacea* mushroom is 35 °C and of 80 – 90 % relative humidity (Bao *et al.*, 2013; Ahlawat & Tewari, 2011; Jang *et al.*, 2009).