CHAPTER 5

CONCLUSION

5.1   Summary

This study was conducted to evaluate the mother spawn production of *V. volvacea* on different cereal grains and biomass for rapid mycelium growth rate and biological efficiency using paddy straw as cultivation medium. The parameters examined were temperature, amount of rice bran and $CaCO_3$.

The best medium to cultivate different part of the body of *V. volvacea* was MEA where the mushroom uptake the maximum nutrient as compared to PDA and NA. Nevertheless, RSD is the best substrate to carry out the spawn run test using GRT method which prove essential for the experiment to carry on. Total lignocellulosic content of paddy straw was found out to be 11.87 % of extractives, 20.84 % of hemicellulose, 34.20 % of cellulose, 10.58 % of lignin and 22.51% of ash.

The optimum conditions for minimum days taken for *V. volvacea* mycelium fully colonization on RSD substrate was 34˚C, 0.5 gram of rice bran and 0.07 gram of $CaCO_3$. From the effect and interaction of the days taken for *V. volvacea* mycelium fully colonization on RSD substrate obtained, it could be concluded that *V. volvacea* is really a high temperature mushroom and with it does not need high amount of rice bran to grow. Whereas, adequate amount of $CaCO_3$ was required to control the acidity of the substrate.

Finally, an additional experimental solution suggested (temperature-30.96 ˚C, amount of rice bran-0.5 gram, amount of $CaCO_3$-0.08) was carried out to validate the approximation model. The average total days taken for *V. volvacea* mycelium fully

colonization on RSD substrate obtained was found to be near to the predicted value with total percentage error of 1.4287 %. The validation test has further verify that 95 % of certainty that the approximation model constructed with combinatorial of BBD with RSM and analysis of variance of statistical study is an effective tool for the modelling the optimization of total days taken for *V. volvacea* mycelium fully colonization on RSD substrate. Last but not least, it was found out that the total days taken for *V. volvacea* mycelium to fully colonize the substrate paddy straw in "bongkah" was 10 days while for non-composted EFB was 12 days.

5.2   Recommendation for Future Project

The advancing of modern day technology, would force the traditional mushroom growers to reckon the knowledge, skills and principles as a tool and guideline for them to further improved the yield, biological efficiency and mother spawn growth rate of their crops.

The combination of PS and other wastes such as EFB can be included to further study and improve the current formulation and research. Last but not least, a well-equipped and up to date mushroom house with complete facilities like clean room, air humidifier, automatic sprinkler system and temperature regulator should be incorporated to ensure the environment can be maintained in an optimum condition.

5.3   Commercialization Potential

Straw mushroom are one of the well-known specialty mushrooms and most importantly it is easy to market which will give a good insight for young mushroom entrepreneurs to challenge odds and fight for a new and promising markets. Straw mushroom can be apposite as an integral part of a sustainable agriculture system which able to develop on a small scale with a minimum amount of startup money, while utilize

and convert common waste allocated all around the environment to produce high quality and standard mother spawn and fruiting bodies to maximize present profit.

The benefits of this research have proven to be a positive and promising research. By utilizing the current information and this research findings, new development of methods for mushroom cultivators to cultivate straw mushroom can be discovered. Plus, if this research can be succeed, local mushroom cultivators will no longer rely on overseas country to purchase the expensive straw mushroom mother spawn and more benefits and wonders for eating straw mushroom can be widely introduced to the whole country.