CHAPTER 5

CONCLUSION

The preliminary screening using plug assay method showed that only seven of the species possessed antimicrobial activity against five test microorganisms. The activity of each species may not be accurate using the plug method and this may be due to the amount of active metabolites released to the media are not enough besides that, some fungi may have restored their metabolites in mycelia. However, this preliminary study is effective in producing quick results reflect the numbers of fungi that need to be screened.

Screening of antimicrobial activity using the disc diffusion assay was carried for five species of Antarctic fungi which were cultivated in different incubation periods. A 10 days incubation time does not affect the production of active metabolites for all the fungi but the antimicrobial activity is produced after 10 days and decreased after 21 days, suggesting that they require a certain time to produce active metabolites. The incubation time can be increased as certain times may affect the production of metabolites, although if the fungal culture is old, it will no longer produce active metabolites. A few things can be considered here to improve and optimise antimicrobial activities. Physical culture conditions should be taken into consideration. The production of active metabolites can be further increased by optimising the pH, different media, and different salinities. Besides, the fungi can also be extracted by using mycelia using different solvents to observe the antimicrobial activity.

The activity of the active compounds was assessed in this study, and showed activity against; *B. subtilis, S. aureus, B. cerus* and *P. eorogenosa,* with MIC value ranged from 6.25 mg ml^{-1} to 25 mg ml^{-1}.

Quantitative assay- Minimum Bactericidal concentration (MBC) was carried out against; *B. subtilis, S. aureus, B .cerus* and *P. eorogenosa,* values were range from12.5 mg ml^{-1} to >25 mg ml^{-1}.

Further work

Determination of the active compound in the crude ethyl acetate extracts consider one of the further steps that should be carried out to complete this study and thin layer chromatography (TLC) can be used to purify the compounds. Also the biological evaluation of active compounds for cytotoxicity is an important step in which the compounds needs to be tests for any cytotoxic activity against the tumour cell lines such as Liver carcinoma cell line, brain carcinoma cell line, breast carcinoma cell line and lung carcinoma cell line.