CHARPTER V

CONCLUSION

Sixty eight endophytic fungal strains were isolated from surface-sterilized twigs of the plant *Hydnocarpus anthelminthicus* Pierre. Plant samples were collected from the Central Botanical Garden (Pukae), Saraburi Province, Thailand.

The isolated endophytic fungi were cultured on six different media, including, Malt Extract Agar (MEA), Malt Czapek Agar (MCz), Potatoes Dextrose Agar, (PDA) Sabouraud's Dextrose Agar (SDA), Yeast Czapek Agar (YCz), and Yeast Extract Sucrose agar (YES), and they were determined for anti -*C. albicans* activity.

The fungal isolates HANT 7 and HANT 25 could not produce spores in common mycological media. However, they produced black pycnidia with α-conidia and rare β-conidia on banana leaf. Based on the microscopic morphology and nucleotide sequencing of ITS1-5.8-ITS2 sequence of rDNA, the endophytic fungal isolates HANT 7 and HANT 25 were identified as *Phomopsis* sp. and its teleomorph, *Diaporthe* sp.

In the present investigation, three compounds were isolated from MCz culture of the endophytic fungal isolate HANT 25 and one compound was isolated from HANT 7. These isolated compounds included a new compound, 2-(8-methyl-9-oxa-bicyclo [4.2.1]nona-2,4-dien-7-yl)-6-oxo-tetrahydro-2*H*-pyran-3-yl-acetate, a new natural product, 5-hydroxy-6-(8-methyl-9-oxa-bicyclo[4.2.1]nona-2,4-dien-7-yl)-5,6-dihydro-pyran-2-one, and two known compounds, mycoepoxydiene (isolated from HANT 25) and 2,5-furandithethanol (isolated from HANT 7). Structure elucidation of these compounds were established by analyses of their spectroscopic data and by comparison of spectroscopic data with those reported in the literature.

The isolated compounds **1** and **4** were evaluated for their biological activities. Compound **1** was found to exhibit strong anticancer activity against 11 cell lines and anti-TB. Compound **2** exhibited strong cytotoxic activity against HepG2, A549, and S102 cell lines. Compound **3** was found inactive against HepG2, A549, and S102 cell lines. Compound **4** was found to exhibit weak anticancer activity.