Poster Presentation 4

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Cytotoxicity activity of some small molecular weight peptides from tropical lichen forming fungi

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Trypetheliaceae is a family of pyrenocarpus crustose lichens which are widely found in tropical and some sub-tropical regions. The main genera of this fungal family found in Thailand belong to Astrothelium, Bathelium, Marcelaria, Polymeridium, Pseudopyrenula and Trypethelium. The fungal partner or lichen forming fungi from this representative genus Marcelaria and Trypethelium were isolated by the ascospores discharge method and cultivated on Malt Yeast Extract medium for 9 weeks at ambient temperature. Their major secondary metabolites from the fungal cultures were anthraquinones, lichexanthone napthoquinones, parietin, phenalenones, and xanthones and these have had been investigated for antimicrobial and antioxidant activities. Compounds from a Trypethelium expressed strong activity in antioxidant reactions. There have been no reports of small molecular weight proteins or peptides from lichen forming fungi previously. In this study, the lichen forming fungi, Marcelaria cumingii (K11) and Trypethelium sp. (KRB 172) were selected as representatives. Natural peptides from fungal cells were extracted, partially purified following digestion by pepsin. Cytotoxicity testing revealed that peptides from M. cumingii (K11) exhibited selective inhibition against HepG2, MCF-7 and MDA-MB-231 cell lines at 58.0, 60.7 and 69.9 % inhibition respectively. Peptides from Trypethelium sp. (KRB172) also inhibited HepG2, MCF-7 and MDA-MB-231 cell lines at 58.1, 76.8 and 71.0 % inhibition respectively. This data represents important implications of lichen forming fungi for pharmaceutical applications.