Basic Health Sciences **Poster**

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Determination of ultra-morphological changes of *Trichophyton rubrum* treated with hydroxychavicol

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Introduction: *Trichophyton rubrum* is a common pathogenic fungal species that is responsible for causing infection of human skin, hair and nail. The antifungal-resistant strains however, complicate the treatment regime. Hydroxychavicol (HC) is one of the main compounds from the *Piper betel* leaf that have antifungal potential and its mechanism of action has yet to be studied. This study was carried out to determine the antifungal properties of HC against *Trichophyton rubrum* using transmission electron microscope (TEM) on gross and ultrastructure of *Trichophyton rubrum* hypha. **Methods:** Broth dilution method was used to determine the minimum inhibitory concentration (MIC) and minimum fungicidal concentration (MFC) of HC and miconazole (MI) against the *Trichophyton rubrum* (ATCC 28188). *Trichophyton rubrum* was treated with HC and MI at concentrations of 1.25, 2.5, 5 and 10 mg/mL for 1, 3, 5 and 7 days continuously. **Results:** The MIC results of the HC and MI against *Trichophyton rubrum* were 0.00048 mg/mL and 0.000061 mg/mL respectively. MFC results showed 0.0019 mg/mL for HC and 0.000061 mg/mL for MI. Microscopically, the fungi structures became more severely damaged at increasing treatment duration. The cell wall of the fungi treated with HC showed a rough surface, shrinkage and demolition similar to that of the MI treated group. The fungi organelles were also demolished and disorganized. **Conclusions:** This study reveals that HC has the ability to inhibit *Trichophyton rubrum* growth and it has the potential to be an antifungal agent especially in treating dermatitis.

KEYWORDS: *Piper betel*, *Trichophyton rubrum*, hydroxychavicol, miconazole, antifungal