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 International Medical Journal Malaysia
 Volume 16, Issue 2, 1 December 2017, Pages 65-71

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Ultra-morphological changes of *Trichophyton rubrum* treated with hydroxychavicol (Article)

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Abstract

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Trichophyton rubrum is a common pathogenic fungal species that is responsible for causing infection on human skin, hair and nail. The antifungal-resistant strains complicate the treatment regime. Hydroxychavicol (HC) is one of the main compounds from Piper betel leaf that have antifungal potential and its mechanism of action has not been studied yet. The objective of this preliminary study to determine the antifungal properties of HC against *T. rubrum* using transmission electron microscope (TEM) on gross and ultrastructure of *T. rubrum* hypha. *T. rubrum* was treated with HC and miconazole (MI) at concentrations of 1.25, 2.5, 5 and 10 mg/mL for 1, 3, 5 and 7 days continuously. Generally, fungi structures became more severely damaged at increasing treatment duration. Microscopically, the fungi's cell wall treated with HC showed a rough surface, shrinkage and demolition similar to the MI treated group. The fungi organelles were also demolished and disorganized. This study revealed that HC has the ability to inhibit *T. rubrum* growth and has potential to be an antifungal agent for skin infections.

Author keywords

 Antifu **Hydroxychavicol** Miconazole Piper betel **Trichophyton rubrum**

ISSN: 18234631

Source Type: Journal

Original language: English

Document Type: Article

Publisher: International Islamic University Malaysia

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