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THE EFFECT OF ARBUTIN POWDER AND ARCTOSTAPHYLOS UVAURSI AQUEOUS LEAF EXTRACT ON SYNTHESIS OF MELANIN BY MADURELLA MYCETOMATIS

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Background: Mycetoma is a devastating, slow-growing bacterial or fungal infection, which develops into a chronic infection of the skin tissues and if left untreated, eventually results in amputation. With existing anti-fungal and surgery, only 35% of people living with the fungal form of the disease, known as eumycetoma, are cured, *Madurella mycetomatis* has been found to shield itself against the antifungal therapy through the production of melanin decreasing the effectiveness of the therapy, *Arctostaphylos uva-ursi* has proven antimicrobial effect and is known for its content of arbutin which is a potent inhibitor of melanin synthesis in humans, can hopefully potentiate the action of the present therapy and optimize its effect. The purpose of this study is to investigate the effect of arbutin powder and *A. uva-ursi* aqueous leaf extract on synthesis of melanin by *Madurella mycetomatis*.

Methodology & Theoretical Orientation: Aqueous extract of *A. uva-ursi* was prepared by dissolving 50 g of *A. uva-ursi* leaves in 1000 ml of water:methanol ratio of 95:5. The arbutin solution was prepared by dissolving 0.5 g of arbutin powder in 20 ml of sterile distilled water. The study of the effect of aqueous extract of *A. uva-ursi* and arbutin on the synthesis of melanin by *M. mycetomatis* was carried out as described by van de Sande.

Findings: The inhibitory effect of arbutin on melanin synthesis by *M. mycetomatis* was found to be dose dependent. *A. uva-ursi* aqueous leaf extract containing arbutin was also found to decrease melanin production by *M. mycetomatis*.

Conclusion & Significance: Inhibition of melanin synthesis was observed in the arbutin powder as well as the aqueous extract containing arbutin

Recent Publications

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2. Van de Sande W W, de Kat J, Coppens J, Ahmed A O, Fahal A, et al. (2007) Melanin biosynthesis in *Madurella mycetomatis* and its effect on susceptibility to itraconazole and ketoconazole. Microbes and Infection 9(9):1114–1123.
3. Van de Sande W W J, Fahal A, Verbrugh H and Belkum AI (2007) Polymorphisms in genes involved in innate immunity predispose toward mycetoma susceptibility. Journal of Immunology 179:3065–3074.
4. Ahmed A, Adelmann D, Fahal A, Verbrugh H, van Belkum A, et al. (2002) Environmental occurrence of *Madurella mycetomatis*, the major agent of human eumycetoma in Sudan. Journal of Clinical Microbiology 40(3):1031–1036.



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