

The first isolation of multiple antifungal-drug-resistant *Trichophyton rubrum* in china and the novel resistance mechanism

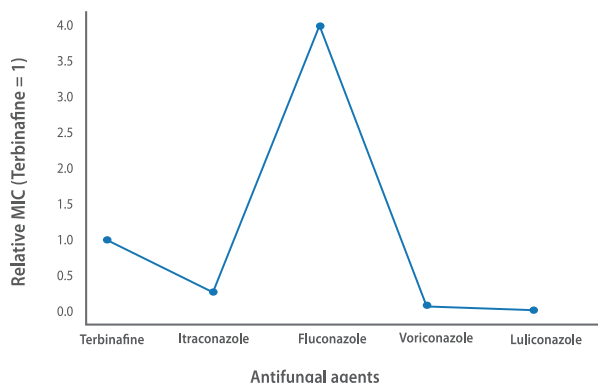
- Dermatophytosis caused by *Trichophyton rubrum* affects nearly 70% of global dermatophyte infections which is increasingly becoming difficult to treat due to antifungal resistance.
- An urgent need for more potent topical options has been created due to rising resistance to commonly used antifungals such as terbinafine and others.
- Recent in-vitro evidence highlights luliconazole as a highly active azole with superior antifungal potency against multidrug-resistant *T. rubrum* strains.

Study Design: In-vitro antifungal susceptibility study

Isolates	Center	Intervention	Comparator	Result
<i>Trichophyton rubrum</i> clinical isolates including MDR strain (L-6424)	Multicenter, China	28 days, topical application twice daily	Terbinafine, Itraconazole, Fluconazole, Voriconazole & Luliconazole	Luliconazole showed lowest MIC ≤ 0.0005 mg/L, maintaining activity even against multidrug-resistant isolates

Parameter	Terbinafine	Itraconazole	Fluconazole	Voriconazole	Luliconazole
MIC (mg/L)	2.0	0.5	8.0	0.125	≤ 0.0005

Relative MIC comparison showing superior potency of Luliconazole



Conclusion

- Multidrug-resistant *T. rubrum* is an emerging clinical challenge, limiting the effectiveness of conventional antifungals.
- Luliconazole demonstrates exceptional in-vitro potency, with the lowest MIC among tested agents, including resistant isolates.
- These findings support luliconazole as a rational, science-backed topical choice for dermatologists managing difficult and recurrent dermatophytosis cases.

Ref.: Song G, Xie W, Kong X, Zheng H, Tsui CKM, She X, Liu W, Li X, Liang G. The First Isolation of Multiple Antifungal-Drug-Resistant *Trichophyton rubrum* in China and the Novel Resistance Mechanism. *Mycoses*. 2025;68:e70128. <https://doi.org/10.1111/myc.70128>

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Luliconazole: A Novel Imidazole for Superficial Fungal Infections



Intelligence applied. Benefits multiplied

Drug Review

An overview of dermatophytosis

- Fungal infections (superficial and invasive) are a major health problem and an important cause of morbidity. Superficial fungal infections affect as many as 20%–25% of the world's population and are associated with interference with daily activities, poor quality of life, and health care expenditure.
- Dermatophytosis usually remain localized to the superficial layers of the skin, hair, or nails. They are also commonly known as ringworms for its characteristic ring-shaped lesions.

Challenges in the treatment of fungal infections

- Adequate treatment of cutaneous mycoses with current antifungals often requires long courses, but patients discontinue early once symptoms subside, leaving fungi behind and causing relapses. Short-course, fungicidal agents that ensure mycological clearance are therefore highly needed.
- The ideal topical antifungal should provide broad-spectrum fungicidal activity at low doses, convenient once-daily use, keratinophilic/lipophilic action, high cure rates with reservoir effect, minimal resistance or relapse, good safety, and affordability.

Luliconazole: redefining standards in topical antifungal therapy

Luliconazole is a novel, optimally micronized imidazole antifungal designed to address the persistent challenges in dermatophytosis management. Its clinical efficacy, rapid action, and patient-friendly regimen make it a superior choice in topical antifungal therapy. It has:

- **Robust antifungal activity:** Demonstrates strong fungicidal action against common dermatophytes, ensuring comprehensive pathogen clearance.
- **Simplified treatment regimen:** Once-daily dosing with short treatment duration (1 week for tinea cruris/corporis, 2 weeks for tinea pedis), improving adherence and compliance.
- **Enhanced skin penetration:** Micronized formulation (<25 microns) achieves deeper tissue penetration for effective eradication of residual fungi.
- **Proven clinical outcomes:** Randomized trials confirm high clinical and mycological cure rates with significantly lower relapse compared to vehicle.
- **Excellent safety profile:** Well-tolerated with minimal localized adverse events (<1%), ensuring high patient acceptability.

Table 1: Efficacy results at 4 weeks post-treatment- interdigital tinea pedis

	Study 1		Study 2	
	LULICONAZOLE Cream, 1% N= 106 n (%)	Vehicle Cream N= 103 n (%)	LULICONAZOLE Cream, 1% N= 107 n (%)	Vehicle Cream N= 107 n (%)
Complete Clearance	28 (26%)	2 (2%)	15 (14%)	3 (3%)
Effective Treatment	51 (48%)	10 (10%)	35 (33%)	16 (15%)
Clinical Cure	31 (29%)	8 (8%)	16 (15%)	4 (4%)
Mycological Cure	66 (62%)	18 (18%)	60 (56%)	29 (27%)

Table 2: Efficacy results at 3 weeks post treatment- tinea cruris

	LULICONAZOLE Cream, 1% N= 165 n (%)	Vehicle Cream N= 91 n (%)
Complete Clearance	35 (21%)	4 (4%)
Effective Treatment	71 (43%)	17 (19%)
Clinical Cure	40 (24%)	6 (7%)
Mycological Cure	129 (78%)	41 (45%)

Ref.: 1. Luliconazole for the treatment of fungal infections: an evidence-based review, Deepshikha Khanna Subhash Bhatti: Core Evidence 2014;9; 2. A critical appraisal of once-daily topical luliconazole for the treatment of superficial fungal infections, Aditya K Gupta, Deanne Daigle: Infection and Drug Resistance 2016;9; 3. Epidemiological trends in skin mycoses worldwide, Blanka Hawliczkova, Viktor A. Czaika and Markus Friedrich: Mycoses, 51 (Suppl. 4), 2–15; 4. LULIZA product monograph; 5. A Randomized, Double-blind, Vehicle controlled Trial of Luliconazole Cream 1% in the Treatment of Interdigital Tinea Pedis, Zoe Diana Draelos, Md, Faad; Tracey C. Vlahovic, Dpm; Michael H. Gold, Md, Faad; Lawrence Charles Parish, Md, Md (Hon), Faad; Andrew Korotzer, PhD: J Clin Aesthet Dermatol. 2014; 6. Efficacy and tolerability of luliconazole cream 1% for dermatophytosis: A Meta-analysis Xiaowei FENG, Jimwei XIE, Kaiwen ZHUANG, Yuping RAN: Journal of Dermatology 2014; 41: 779–782; 7. Comparison of efficacy, safety, and cost-effectiveness of sertaconazole and luliconazole cream in patients with dermatophytosis: A prospective, randomized, open-label study; Ganesh N. Dakhale, Ashish V. Gupta, Jayesh I. Mukhi, Mrunalini V. Kalkikar 2021; 8. Jarratt M, Jones T, Adelglass J, et al. Efficacy and safety of once-daily luliconazole 1% cream in patients <12 years of age with interdigital tinea pedis: a phase 3, randomized, double-blind, vehicle-controlled study. J Drugs Downloaded by [University of Otago] at 03:27 18 November 2015 17 Dermatol 2014;13(7):838-846.

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