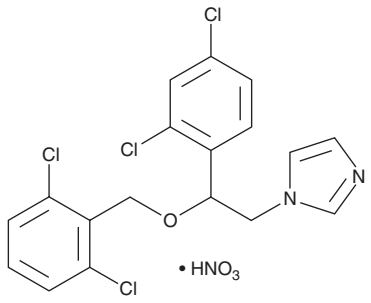
PRODUCT INFORMATION

Isoconazole (nitrate)

Item No. 30100

CAS Registry No.: 24168-96-5
Formal Name: 1-[2-(2,4-dichlorophenyl)-2-[(2,6-dichlorophenyl)methoxy]ethyl]-1H-imidazole, mononitrate
Synonyms: Adestan G 100, R 15454
MF: $C_{18}H_{14}Cl_4N_2O \bullet HNO_3$
FW: 479.1
Purity: ≥98%
Supplied as: A solid
Storage: -20°C
Stability: ≥2 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

Isoconazole (nitrate) is supplied as a solid. A stock solution may be made by dissolving the isoconazole (nitrate) in the solvent of choice, which should be purged with an inert gas. Isoconazole (nitrate) is soluble in organic solvents such as DMSO and dimethyl formamide (DMF). The solubility of isoconazole (nitrate) in these solvents is approximately 10 mg/ml.

Isoconazole (nitrate) is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, isoconazole (nitrate) should first be dissolved in DMF and then diluted with the aqueous buffer of choice. Isoconazole (nitrate) has a solubility of approximately 0.2 mg/ml in a 1:4 solution of DMF:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

Description

Isoconazole is an imidazole with antimicrobial activity.[1] It is active against clinical isolates of *Candida* species, including *C. albicans*, *C. parapsilosis*, *C. tropicalis*, *C. krusei*, and *C. guilliermondii* with MIC values ranging from 0.12 to 2 µg/ml. It is also active against the fungi *T. mentagrophytes* and *T. rubrum* when used at a concentration of 0.1 µg/ml and the bacteria *C. tuberculostearicum*, methicillin-resistant *S. aureus* (MRSA), and *S. epidermis* (MICs = 3.9, 32, and 5.6 mg/L, respectively).[2,3] Isoconazole induces the production of reactive oxygen species (ROS) in *S. aureus*.[3] It also inhibits heme oxygenase in rat spleen and rat brain microsomes that endogenously express high levels of heme oxygenase-1 (HO-1) and HO-2, respectively (IC_{50}s = 5.6 and 32.6 µM, respectively).[4]

References

1. Hernández Molina, J.M., Llosá, J., Martinez Brocal, A., *et al. In vitro* activity of cloconazole, sulconazole, butoconazole, isoconazole, fenticonazole, and five other antifungal agents against clinical isolates of *Candida albicans* and *Candida* spp. *Mycopathologia* **118(1)**, 15-21 (1992).
2. Godefroi, E.F., Heeres, J., Van Cutsem, J., *et al.* The preparation and antimycotic properties of derivatives of 1-phenethylimidazole. *J. Med. Chem.* **12(5)**, 784-791 (1969).
3. Czaika, V.A., Siebenbrock, J., Czekalla, F., *et al.* Reactive oxygen species and the bacteriostatic and bactericidal effects of isoconazole nitrate. *Mycoses* **56(Suppl 1)**, 16-22 (2013).
4. Kinobe, R.T., Dercho, R.A., Vlahakis, J.Z., *et al.* Inhibition of the enzymatic activity of heme oxygenases by azole-based antifungal drugs. *J. Pharmacol. Exp. Ther.* **319(1)**, 277-284 (2006).

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