Bifonazole

Cat. No.: HY-B0301
CAS No.: 60628-96-8
Molecular Formula: C₂₂H₁₈N₂
Molecular Weight: 310.39
Target: Fungal; Antibiotic
Pathway: Anti-infection
Storage: Powder -20°C 3 years
         4°C 2 years
         In solvent -80°C 2 years
         -20°C 1 year

SOLVENT & SOLUBILITY

In Vitro
DMSO: 33.33 mg/mL (107.38 mM; Need ultrasonic)
H₂O: < 0.1 mg/mL (ultrasonic) (insoluble)

Preparing Stock Solutions

<table>
<thead>
<tr>
<th>Solvent</th>
<th>Mass</th>
<th>1 mg</th>
<th>5 mg</th>
<th>10 mg</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 mM</td>
<td>3.2218 mL</td>
<td>16.1088 mL</td>
<td>32.2175 mL</td>
<td></td>
</tr>
<tr>
<td>5 mM</td>
<td>0.6444 mL</td>
<td>3.2218 mL</td>
<td>6.4435 mL</td>
<td></td>
</tr>
<tr>
<td>10 mM</td>
<td>0.3222 mL</td>
<td>1.6109 mL</td>
<td>3.2218 mL</td>
<td></td>
</tr>
</tbody>
</table>

Please refer to the solubility information to select the appropriate solvent.

In Vivo
1. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.5 mg/mL (8.05 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (8.05 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (8.05 mM); Clear solution

BIological ACTIVITY

Description
Bifonazole (Bay H-4502) is an imidazole antifungal agent.

IC₅₀ & Target
Antifungal[1].

In Vitro
Bifonazole (Bay H-4502), a new broad-spectrum antimycotic, interferes with sterol biosynthesis. In dermatophytes bifonazole additionally inhibits directly HMG-CoA-reductase. bifonazole possesses a sequential mode of action, namely
inhibition of cytochrome P450-dependent C14-demethylation of sterols and direct inhibition of HMG-CoA-reductase. In vitro Bifonazole (Bay H-4502) shows a strongly pH-dependent efficacy. The uptake kinetics of Bifonazole (Bay H-4502) have been measured with different pathogens [1]. Bifonazole (Bay H-4502) additionally leads to a generally decreased rate of sterol biosynthesis as compared to clotrimazole, due to a direct inhibition of microsomal HMG-CoA-reductase. The additional fungicidal effects of Bifonazole (Bay H-4502) are considered to originate from a sequential action by inhibition of HMG-CoA-reductase and of cytochrome P450 [2]. Bifonazole (Bay H-4502) were affected by choice of medium with Kimmig’s agar generally giving the lowest MIC’s. Bifonazole MICs were shown to vary with pH (maximal activity at pH 6.5) with selected yeasts when tested on Kimmig’s agar [3].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

REFERENCES

