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: 6 months  
  - -20°C: 1 month

**SOLVENT & SOLUBILITY**

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

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

Preparing Stock Solutions:  
10 mM
- 0.3222 mL
- 1.6109 mL
- 3.2218 mL

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 drug.

**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