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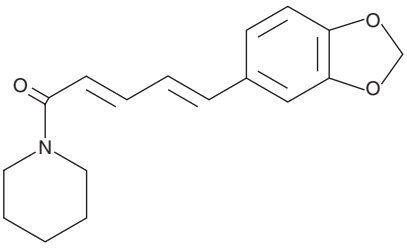
PRODUCT INFORMATION

Piperine

Item No. 11750

CAS Registry No.:	94-62-2
Formal Name:	(2E,4E)-5-(1,3-benzodioxol-5-yl)-1-(1-piperidinyl)-2,4-pentadien-1-one
Synonyms:	Bioperine, NSC 21727, N-Piperoylpiperidin
MF:	$C_{17}H_{19}NO_3$
FW:	285.3
Purity:	≥98%
UV/Vis.:	λ_{max}: 255, 310, 345 nm
Supplied as:	A crystalline solid
Storage:	-20°C
Stability:	≥4 years



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

Laboratory Procedures

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

Piperine is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, piperine should first be dissolved in DMSO and then diluted with the aqueous buffer of choice. Piperine has a solubility of approximately 0.1 mg/ml in a 1:7 solution of DMSO:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

Description

Piperine is a natural alkaloid that can be isolated from black pepper. It activates the transient receptor potential vanilloid type 1 receptor (TRPV1; EC_{50} = 38 µM) and modulates $GABA_A$ receptors (EC_{50}s = 43-60 µM).[1,2] At similar levels, piperine inhibits both monoamine oxidases (MAOs), with IC_{50} values of 21 and 7 µM for MAO-A and MAO-B, respectively.[3] Like other natural compounds containing methylenedioxyphenyl substituents, piperine affects cytochrome P450 (CYP) isoforms, inhibiting CYP3A species (K_i ~ 5 µM) and increasing expression of CYP1A and CYP2B in liver.[4] It also has a biphasic effect on P-glycoprotein activity.[5]

References

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2. Schöffmann, A., Wimmer, L., Goldman, D., *et al.* Efficient modulation of g-aminobutyric acid type A receptors by piperine derivatives. *J. Med. Chem.* **57(37)**, 5602-5619 (2014).
3. Lee, S.A., Hong, S.S., Han, X.H., *et al.* Piperine from the fruits of Piper longum with inhibitory effect on monoamine oxidase and antidepressant-like activity. *Chem. Pharm. Bull. (Tokyo)* **53(7)**, 832-835 (2005).
4. Murray, M. Toxicological actions of plant-derived and anthropogenic methylenedioxyphenyl-substituted chemicals in mammals and insects. *J. Toxicol. Environ. Health B. Crit. Rev.* **15(6)**, 365-395 (2012).
5. Najar, I.A., Sachin, B.S., Sharma, S.C., *et al.* Modulation of P-glycoprotein ATPase activity by some phytoconstituents. *Phytother. Res.* **24(3)**, 454-458 (2010).

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