3050 Spruce Street
Saint Louis, Missouri 63103 USA
Telephone 800-325-5832 • (314) 771-5765
Fax (314) 286-7828
email: techserv@sial.com
sigma-aldrich.com

ProductInformation

8-Methoxypsoralen

Product Number **M 3501**
Store at Room Temperature

Replacement for Product Number 23,272-6

Product Description
Molecular Formula: $C_{12}H_8O_4$
Molecular Weight: 216.2
CAS Number: 298-81-7
Melting Point: 148 °C
Extinction Coefficient:
E^{mM} = 22.4 (249 nm), 11.5 (300 nm) (ethanol)
Synonyms: 8-MOP; Methoxsalen

Psoralens are naturally occurring substances that appear to serve a defensive role in some plants. Psoralens have been detected in fruit, seeds, leaves, stems, and roots. Psoralens have antiviral, antibacterial, antifungal, and insecticide properties. Psoralens are also germination inhibitors. Naturally occurring psoralens include psoralen, 8-methoxypsoralen, 5-methoxypsoralen, and 4,5',8-trimethylpsoralen. 8-methoxypsoralen is found in the *Ammi majus* plant. *Ammi majus* is known by the common names Bishop's Flower, Bishop's Weed, or False Queen Anne's Lace.[1-7]

Psoralens are members of the furocoumarin family of tricyclic molecules with an extended aromatic system which gives rise to strong absorption at certain ultraviolet light wavelengths (320-400 nm). Light activated psoralens can participate in photochemical reactions.[8]

Psoralens cause light sensitization of human skin. Psoralen photochemistry has been used to study DNA mutation and repair mechanisms. A photocycloadditon product is formed between pyrimidines (primarily thymidine) when a psoralen-DNA intercalation complex absorbs UV radiation.[8-12]

Precautions and Disclaimer
For Laboratory Use Only. Not for drug, household or other uses.

Preparation Instructions
This product is soluble in chloroform (50 mg/ml), yielding a clear to slightly hazy, faint yellow solution.

References
1. Zobel, A. M. and Brown, S. A., Histological localization of furanocoumarins in *Ruta graveolens*. Can. J. Bot., **67**, 915-921 (1989).
2. Nguyen, C., et al., Quantification of daidzein and furanocoumarin conjugates of *Psoralea cinerea* L. (*Leguminosae*). Phytochem. Anal., **8**, 27-31 (1997).
3. Chaudhary, S. K., et al., Increased furanocoumarin content of celery during storage. J. Agric. Food Chem., **33**, 1153-1157 (1985).
4. Zangerl, A. R., Furanocoumarin induction in wild parsnip: evidence for an induced defence against herbivores. Ecology, **71**, 1933-1940 (1990).
5. Baskin, J. M., et al., Psoralen, an inhibitor in the seeds of *Psoralea subacaulis* (*Leguminosae*). Phytochemistry, **6**, 1209-1213 (1967).
6. Pathak, M. A., and Fitzpatrick, T. B., The evolution of photochemotherapy with psoralens and UVA (PUVA): 2000 BC to 1992 AD. J. Photochem. Photobiol. B., **14(1-2)**, 3-22 (1992).
7. Bethea, D., et al., Psoralen photobiology and photochemotherapy: 50 years of science and medicine. J. Dermatol. Sci., **19(2)**,78-88 (1999).
8. Edelson, R. L., Light activated drugs. Sci. Am., **259(2)**, 68-75 (1988).
9. Innocenti, G., et al., Investigation on skin-photosensitizing activity of various kinds of *Psoralea*. Planta Med., **31(2)**, 151-155 (1977).
10. Laskin, J. D., Cellular and molecular mechanisms in photochemical sensitization: studies on the mechanism of action of psoralens. Food Chem. Toxicol., **32(2)**, 119-27 (1994).

11. Dawe, R. S., et al., A randomized controlled trial of narrowband ultraviolet B vs. bath-psoralen plus ultraviolet A photochemotherapy for psoriasis. Br. J. Dermatol., **148(6)**, 1194-1204 (2003).

12. Parsad, D., et al., SP-20 repigmentation patterns and their co-relation with different treatment modalities, speed and stability of pigmentation in 352 vitiliginous patches. Pigment Cell Res., **16(5)**, 587 (2003).

CMK/CRF 1/04