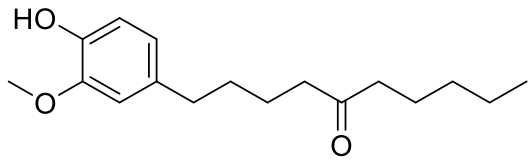
Product data sheet

MedKoo Cat#: 326793 Name: Paradol CAS#: 27113-22-0 Chemical Formula: $C_{17}H_{26}O_3$ Exact Mass: 278.1882 Molecular Weight: 278.392	
Product supplied as:	Powder
Purity (by HPLC):	≥ 98%
Shipping conditions	Ambient temperature
Storage conditions:	Powder: -20°C 3 years; 4°C 2 years.
	In solvent: -80°C 3 months; -20°C 2 weeks.

1. Product description:
Paradol, also known as 6-Paradol, is the active flavor constituent of the seeds of Guinea pepper (Aframomum melegueta or grains of paradise). It is also found in ginger. Paradol has been found to have antioxidant and antitumor promoting effects in a mouse model. It is used in flavors as an essential oil to give spiciness.

2. CoA, QC data, SDS, and handling instruction
SDS and handling instruction, CoA with copies of QC data (NMR, HPLC and MS analytical spectra) can be downloaded from the product web page under "QC And Documents" section. Note: copies of analytical spectra may not be available if the product is being supplied by MedKoo partners. Whether the product was made by MedKoo or provided by its partners, the quality is 100% guaranteed.

3. Solubility data

Solvent	Max Conc. mg/mL	Max Conc. mM
DMSO	82.5	296.34

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	3.59 mL	17.96 mL	35.92 mL
5 mM	0.72 mL	3.59 mL	7.18 mL
10 mM	0.36 mL	1.80 mL	3.59 mL
50 mM	0.07 mL	0.36 mL	0.72 mL

5. Molarity Calculator, Reconstitution Calculator, Dilution Calculator
Please refer the product web page under section of "Calculator"

6. Recommended literature which reported protocols for in vitro and in vivo study
In vitro study

1. Wang R, Liu T, Chen J, Zhang D. Paradol Induces Cell Cycle Arrest and Apoptosis in Glioblastoma Cells. Nutr Cancer. 2022 Jan 18:1-8. doi: 10.1080/01635581.2022.2028866. Epub ahead of print. PMID: 35040364.
2. Jiang X, Wang J, Chen P, He Z, Xu J, Chen Y, Liu X, Jiang J. [6]-Paradol suppresses proliferation and metastases of pancreatic cancer by decreasing EGFR and inactivating PI3K/AKT signaling. Cancer Cell Int. 2021 Aug 10;21(1):420. doi: 10.1186/s12935-021-02118-0. PMID: 34376189; PMCID: PMC8353760.

In vivo study

1. Rafeeq M, Murad HAS, Abdallah HM, El-Halawany AM. Protective effect of 6-paradol in acetic acid-induced ulcerative colitis in rats. BMC Complement Med Ther. 2021 Jan 13;21(1):28. doi: 10.1186/s12906-021-03203-7. Erratum in: BMC Complement Med Ther. 2021 Feb 10;21(1):60. PMID: 33441125; PMCID: PMC7805070.
2. El-Maadawy WH, Hassan M, Abdou RM, El-Dine RS, Aboushousha T, El-Tanbouly ND, El-Sayed AM. 6-Paradol alleviates Diclofenac-induced acute kidney injury via autophagy enhancement-mediated by AMPK/AKT/mTOR and NLRP3 inflammasome pathways. Environ Toxicol Pharmacol. 2022 Jan 25;91:103817. doi: 10.1016/j.etap.2022.103817. Epub ahead of print. PMID: 35091105.

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7. Bioactivity

Biological target:

Paradol is an effective inhibitor of tumor promotion in mouse skin carcinogenesis, binds to cyclooxygenase (COX)-2 active site.

In vitro activity

To further validate whether 6-P had the inhibitory effect on migration and invasion of MIA PaCa-2 and SW1990, transwell assay and wound healing assay were performed to evaluate to migrate and invasive ability. The migration and invasion significantly decreased in the concentration of 40 and 80 μM compared with 0 μM, revealing that 6-P could also partly suppress the metastasis of pancreatic cancer cells. In addition, the epithelial-mesenchymal transition (EMT) was tested using western blot assay to detect the protein levels of E-cadherin, N-cadherin and Vimentin. The results demonstrated that the expression of E-cadherin gradually rose with the increasing concentration of 6-P. Conversely, the expression of N-cadherin and Vimentin gradually reduced with the increasing concentration of 6-P. The results suggested an inhibited function of 6-P on EMT of pancreatic cancer cells.

Reference: Cancer Cell Int. 2021 Aug 10;21(1):420. https://pubmed.ncbi.nlm.nih.gov/34376189/

In vivo activity

The current study evaluates the effect of 6-paradol in amelioration of ulcerative colitis in rats for the first time. Rats were divided randomly into six groups (n = 8). Group one was administered normal saline; group two was treated with the vehicle only; group three, sulfasalazine 500 mg/kg; and groups four, five, and six, were given 6-paradol (50, 100, 200, respectively) mg/kg orally through gastric gavage for 7 days. Colitis was induced on 4th day by intrarectal administration of 2 ml acetic acid (3%), approximately 3 cm from anal verge. Colonic and serum glutathione (GSH) levels decreased, while colonic and serum malondialdehyde (MDA), colonic myeloperoxidase (MPO) activity, serum interleukin-6 (IL-6), serum tumour necrosis factor-α (TNF-α) levels, and colon weight to length ratio were increased significantly in the colitis untreated group compared to normal control. Treatment with 6-paradol considerably improved all these parameters, especially at a dose of 200 mg/kg ($p < 0.001$), revealing non-significant differences with sulfasalazine 500 mg/kg and normal control ($p = 0.998$). Sulfasalazine and 6-paradol in a dose dependent manner also markedly reversed mucosal oedema, atrophy and inflammation, cryptic damage, haemorrhage, and ulceration. In conclusion, 6-Paradol demonstrated protection against acetic acid-induced ulcerative colitis, probably by anti-inflammatory and antioxidant actions.

Reference: BMC Complement Med Ther. 2021 Jan 13;21(1):28. https://pubmed.ncbi.nlm.nih.gov/33441125/

Note: The information listed here was extracted from literature. MedKoo has not independently retested and confirmed the accuracy of these methods. Customer should use it just for a reference only.