

Cornmint Oil ex Hokkaido

Botanical Source Mentha arvensis
Synonyms Japanese cornmint oil, Hokkaido mint oil
IUPAC Name
CAS Reference 90063-97-1,68917-18-0
E Number

Food Legislation

Council of Europe (CoE)

Number	Comment
429N	

US Food and Drug Administration

Number	Comment
-	-

Joint FAO/WHO Expert Committee on Food Additives (JECFA)

Number	ADI	Comment
-	-	-

FEMA

FEMA No.	Comment
4219	-

Natural Occurrence and Use in Food

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Estimated Intake From Food and Drink

Daily Intake mg/kg/day	FEMA Possible Average Daily
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Toxicological Data on the Unburnt Ingredient

[+ve positive; -ve, negative; ? equivocal]

With, with metabolic activation; without, without metabolic activation]

In vivo Studies

Species	Test Conditions	End Point	Results	Reference
Rabbit, New Zealand White	Dose 100% applied, under semi-occlusion, to the clipped dorsum of rabbits (8/group). After 4 hours the patches were removed and any excess material was wiped clean. Skin reactions were read at 0, 24, 48 and 72 hours post treatment. Control groups received diethyl phthalate and geraniol	Skin irritation	Not irritating by EU classification	ECHA, 2013
Mouse, Swiss Albino	Mice (4/group) were given a single oral administration of an extract (petroleum ether, chloroform or aqueous) of <i>Mentha arvensis</i> Linn and observed for 72 hours. Dose at 10, 100, 1000 and 2000 mg/kg bw	Mortality, clinical signs of toxicity, necropsy	LD50 >2000 mg/kg bw. No mortalities or clinical signs of toxicity.	Londonkar and Poddar 2009
Rat	Rats (10/dose) received a single oral dose of "cornmint oil" (CAS RN 90063-97-1) and were observed for 14 days. Dose at 500, 1200, 1600 and 5000mg/kg bw	Mortality	LD50 1240 mg/kg bw. 1, 5, 6 and 10 animals died at doses of 500, 1200, 1600 and 5000 mg/kg bw respectively	ECHA, 2013
Rabbit	"Cornmint oil" (CAS RN 90063-97-1) was applied to the skin of 10 rabbits. 5000mg/kg bw	Mortality	LD50 >5000 mg/kg bw. No mortalities	ECHA, 2013

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Species	Test Conditions	End Point	Results	Reference
Mouse, Swiss Albino	Male mice (9/group) were administered oral gavage doses of a petroleum ether extract of the "leaves of <i>Mentha arvensis</i> L" for 20, 40 or 60 days. The male mice were then paired with two proven fertile females. All male mice were killed 24 hours after termination of the treatment schedules. A recovery study was also conducted in which two groups of mice were administered the test material (10 or 20 mg/animal/day) for 60 days. Treatment was then withdrawn for 30 days in order to examine recovery. 0, 10 or 20 mg/animal/day [about 330 or 660 mg/kg bw/day].	Reproductive toxicity: Sperm analysis, fertility tests. General systemic effects - Repeated exposure: Body weight, haematology, clinical chemistry, necropsy examination	Reproductive toxicity: Evidence of reversible reproductive toxicity. Treated males showed a statistically significant reduction in number of offspring and statistically significant decreases in weight of testis, epididymis, cauda epididymal sperm count, motility, viability and normal morphology of the spermatozoa. These effects were reversible following withdrawal of treatment. General systemic effects - Repeated exposure: NOAEL 660 mg/kg bw/day (the highest dose tested). No treatment-related effects	Sharma and Jacob, 2001, 2002
Rat, SRL	Female rats (6/group) were administered an oral gavage dose of <i>Mentha arvensis</i> (whole plant) once daily from day 1 to 10 of gestation. Prior to administration, the test material was dried, powdered and extracted using petroleum ether, benzene, rectified spirit or water. Each extract was made solvent free by vacuum distillation. The petroleum ether and benzene extract were dissolved separately in sterile groundnut oil, while the alcoholic and water extract were administered as aqueous suspensions. The study protocol involved the use of a control group	Developmental toxicity: number of implantation sites and litters	No evidence of developmental toxicity	Kholkute et al, 1976

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Species	Test Conditions	End Point	Results	Reference
Rabbit	The anti-ovulatory activity of <i>Mentha arvensis</i> Linn (leaves) was investigated using the copper-induced ovulation method. The test material was air dried, powdered and extracted using petroleum ether, alcohol or water. The extract was then evaporated to dryness and suspended in gum acacia. Female rabbits (5/group) were kept isolated for 21 days to ensure they were not pregnant. They were then administered an oral dose of the test material once daily for 3 days. Thirty minutes after the administration of the last dose, cupric acetate (4 mg/kg bw) was administered to each animal intravenously through the marginal ear vein to induce ovulation. 48 hours after cupric acetate administration, laparotomies were carried to assess ovulation. The study protocol involved the use of a control group	Antifertility parameters (anti-ovulatory activity).	Some evidence of antifertility activity. Alcohol, petroleum ether and water extracts caused 60, 40 and 0% inhibition of ovulation respectively. The investigators reported that "inhibition of ovulation in 50 per cent or more animals was considered encouraging activity	Kapoor et al, 1974

In vitro

Test System	Test Conditions	Endpoint	Activation Status	Results	Reference
Human lymphocyte cells	In Experiment 1 the cells were exposed to the test material for 3 hours with and without metabolic activation. In Experiment 2 the cells were exposed to the test material for 3 hours with metabolic activation and 24/48 hours without. The test protocol involved the use of positive and vehicle controls	Chromosome damage	With and without	-ve Cytotoxicity was seen	ECHA, 2013
Mouse lymphoma L5178Y cells	In Experiment 1 the cells were exposed to the test material for 3 hours with and without metabolic activation. In Experiment 2 the cells were exposed to the test material for 3 hours with metabolic activation and 24 hours without. The test protocol involved the use of positive and vehicle controls. Study performed to OECD test guideline 476 and GLP	Mutation	With and without	-ve Cytotoxicity was seen	ECHA, 2013

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Test System	Test Conditions	Endpoint	Activation Status	Results	Reference
<i>Salmonella typhimurium</i> , strains TA98, TA100, TA1535, TA1537 and <i>Escherichia coli</i> , strain WP2 uvrA	Bacterial reverse mutation (Ames) assay, in which "cornmint oil (mentha arvensis)" (CAS RN 90063-97-1) was tested with and without metabolic activation. The test protocol involved the use of positive and vehicle controls. Study performed to OECD test guideline 471 and to GLP	Mutation	With and without	-ve Toxicity was seen	ECHA, 2013
<i>Salmonella typhimurium</i> , strains TA98 and TA100	Bacterial reverse mutation (Ames) assay, in which "Hakka (Mentha arvensis L. var. Piperascens Malinvaud)" was tested with and without metabolic activation. Prior to analysis, the test material was extracted with either methanol or water, concentrated to dryness and dissolved in either dimethyl sulphoxide or water respectively. The test protocol involved the use of positive and negative (untreated) controls. Dose 0, 1, 2, 5 and 10 mg/plate	Mutation		-ve	Morimoto et al, 1982
<i>Bacillus subtilis</i> , strains H17 and M45	Recombination assay in which "Hakka (Mentha arvensis L. var. Piperascens Malinvaud)" was tested without metabolic activation. Prior to analysis, the test material was extracted with either methanol or water, concentrated to dryness and dissolved in either dimethyl sulphoxide or water respectively. A filter paper disc was impregnated with 60 µl of a 100 mg/ml solution. The study protocol involved the use of positive and negative controls 6mg/disc	DNA damage	Without	Weak +ve (methanol extract) -ve (water extract)	Morimoto et al, 1982.

References

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