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Table 2

Some common ingredients in natural repellents that may be hazardous. Reproduced with permission from [63]

Common Name	Scientific Name	Safe Concentration	Hazard
Anise	<i>Pimpinella anisum</i>	3.6%	Based on 0.11% methyl eugenol; carcinogen
Basil	<i>Ocimum sp</i>	0.07%	Based on 6% methyl eugenol; carcinogen
Bergamot	<i>Citrus aurantium bergamia</i>	0.4%	Sensitising and phototoxic; skin irritant
Cajeput	<i>Melaleuca alternifolia</i>	0.004%	Based on 97% methyl eugenol; carcinogen
Cedar	<i>Chamaecyparis nootkatensis</i>	1%	Likely allergenic contaminants if nootkatone not 98% pure
Cassia	<i>Cinnamomum cassia</i>	0.2% or 9%	Sensitising skin irritant
Citronella	<i>Cymbopogon nardus</i>	2%	Safety is controversial; based on 0.2% methyl eugenol or 1.3% citral; sensitising skin irritant
Citronella (Java)	<i>Cymbopogon winterianus</i>	2%	Based on 0.2% methyl eugenol; carcinogen
Citrus oils	<i>Citrus sp</i>	16-25%	Based on 0.005%-0.0025% bergapten; phototoxic skin irritant
Clove	<i>Syzygium aromaticum</i>	0.5%	Based on 92% eugenol; sensitising skin irritant
Fever tea, lemon bush	<i>Lippia javanica</i>	2%	Based on 5% citral in related species; sensitising skin irritant
Geranium	<i>Pelargonium graveolens</i>	6%	Based on 1.5% citral; sensitising skin irritant
Ginger	<i>Zingiber sp</i>	12%	Based on 0.8% citral; sensitising skin irritant
Huon oil, Macquarie pine	<i>Langarostrobis franklini</i>	0.004%	Based on 98% methyl eugenol; carcinogen
Lemongrass	<i>Cymbopogon citratus</i>	0.1%	Based on 90% citral; sensitising skin irritant
Lime	<i>Citrus aurantifolia</i>	0.7%	Phototoxic skin irritant
Litsea	<i>Litsea cubeba</i>	0.1%	Based on 78% citral; sensitising skin irritant
Marigold	<i>Tagetes minuta</i>	0.01%	Phototoxic skin irritant
Mexican tea, American wormseed	<i>Chenopodium ambrosioides</i>	Prohibited	Toxic
Mint	<i>Mentha piperata and spicata</i>	2%	Based on 0.1% trans-2-hexenal; sensitising skin irritant
Nutmeg	<i>Myristica fragrans</i>	0.4%	Based on 1% methyl eugenol; carcinogen

Common Name	Scientific Name	Safe Concentration	Hazard
Palmarosa	<i>Cymbopogon martini</i>	16%	Based on 1.2% farnesol; sensitizing skin irritant
Pennyroyal	<i>Mentha pulegium</i> or <i>Hedeoma pulegioides</i>	Prohibited	Toxic
Pine	<i>Pinus sylvestris</i>	Prepare with antioxidants	Oxidation creates phototoxic skin irritants
Rosemary	<i>Rosemarinus officinalis</i>	36%	Based on 0.011% methyl eugenol; carcinogen
Rue	<i>Ruta chalepensis</i>	0.15%	Based on presence of psoralenes; phototoxic skin irritant
Thyme	<i>Thymus vulgaris</i>	2%	Based on 0.1% trans-2-hexenal; sensitising skin irritant
Violet	<i>Viola odorata</i>	2%	Based on 0.1% trans-2-hexenal; sensitising skin irritant
Ylang-ylang	<i>Canagium odoratum</i>	2%	Based on 4% farnesol; sensitizing skin irritant