The European Agency for the Evaluation of Medicinal Products
Veterinary Medicines Evaluation Unit

EMEA/MRL/633/99-FINAL
July 1999

COMMITTEE FOR VETERINARY MEDICINAL PRODUCTS

LAVANDULAE AETHEROLEUM

SUMMARY REPORT

1. *Lavandulae aetheroleum* is the volatile oil obtained from *Lavandula angustifolia* (true lavender), a perennial bush growing throughout the Mediterranean region. The volatile oil is extracted from the fresh flowers and/or the inflorescence, the flowers being collected just before opening and dried. The flowers contain hydroxycoumarins including among others umbelliferone, herniarin, tannins, caffeic acid derivatives, rosmaric acid, and volatile oil (1 to 3%). The main components of the volatile oil are (-)-linalool (20 to 50%) and linalyl acetate (30 to 40%), accounting in total for 60 to 65% sometimes up to 75% of *Lavandulae aetheroleum*. Furthermore the volatile oil includes among others cis-ocimene, terpinene-4-ol, beta-caryophyllene and lavandulyl acetate.

2. *Lavandulae aetheroleum* is used in a veterinary medicinal product for topical use together with other plant extracts or essential oils for antiseptic and healing purposes. The product contains 5.8% of the essential oil together with seven plant extracts or essential oils for the use in horses, cattle, sheep, goats, rabbits and poultry. Wounds are liberally sprayed 3 to 4 times daily with the product until complete healing or applied by means of a wound dressing.

   Lavandulae aetheroleum is used in human medicinal products to induce sleep and to treat functional disorders of the upper gastrointestinal tract at an oral dose of 1 to 4 drops (20 to 80 mg/person), e.g. on a sugar cube. Traditionally it was also used to help healing necrotic wounds and as balneotherapy for treatment of functional circulatory disorders, however its efficacy for these indications has not been adequately substantiated. When administered orally it reported to have choleretic and cholagogic, mild sedative and anti-flatulent effects.

   Lavender oil is also extensively used as a flavouring agent. Its main use is in perfumery and it is occasionally used in ointments and other pharmaceutical preparations to cover disagreeable odours.

3. The antimicrobial properties of *Lavandulae aetheroleum* are mainly related to its linalool-contents, but also to the presence of terpene derivatives. It is active against both bacteria and fungi, including dermatophytes. Parenterally administered *Lavandulae aetheroleum* has anticonvulsive effects. After intraperitoneal administration it inhibits convulsions provoked by electric shock in rats at average doses of 140 mg/kg bw, while in mice the ED_{50} for this effect is 250 mg/kg bw. However, strychnine-induced convulsions and nicotine or arecoline-induced hyperactivity is not inhibited. Following an oral dose of 0.4 ml/kg bw in mice, *Lavandulae aetheroleum* has a neurodepressive action as indicated by a reduction in the time for induction of sleep by pentobarbital (intraperitoneal dose of 40 mg/kg bw) and a prolongation of the pentobarbital sleeping time in mice. In rats intraperitoneal administration of *Lavandulae aetheroleum* significantly prolongs the duration of hexobarbital, alcohol and chloral hydrate narcosis. Inhalation in mice as well as parenteral administration of *Lavandulae aetheroleum* in rats induces central nervous depression resulting in decreased motor activity, an effect also induced by linalool and linalyl acetate.

4. Very limited toxicity data on *Lavandulae aetheroleum* is available; the LD_{50} of lavender oil is reported to be 9 g/kg in mice. For rats the oral and dermal LD_{50} of *Lavandulae aetheroleum* is higher than 5 g/kg bw. The following other values are reported for rats: the LD_0 is 5 ml/kg bw in males and 3 ml/kg bw in females, the LD_{50} values are 6.2 and 5 ml/kg bw for male and female rats, respectively, while the LD_{100} is reported as more than 7 ml/kg bw for males and more than 6 ml/kg bw for females.

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5. No health hazards or side effects are known in conjunction with the proper administration of designated therapeutic dosages in humans. Doses above 1 g/person are reported to cause somnolence. *Lavandulae aetheroleum* has only very seldom been reported to cause allergies and it has a very limited sensitisation potential in humans. However, lavender oil has been reported to produce nausea, vomiting, headache, and chills when inhaled or absorbed through the skin.

6. The Joint FAO/WHO Expert Committee on Food Additives (JECFA) considered linalool and linalyl acetate, constituents of *Lavandulae aetheroleum* as part of a group of substances and an estimated ADI of 500 µg/kg bw i.e. 3000 µg/person was established for citral, geranyl acetate, citronellol, linalool and linalyl acetate expressed as citral.

   In the United States of America, *Lavandulae aetheroleum* has been granted GRAS-status, i.e. generally recognised as safe, by the Food and Drug Administration (FDA).

Conclusions and recommendation

Having considered the criteria laid down by the Committee for Veterinary Medicinal Products for inclusion of substances into Annex II of Council Regulation (EEC) 2377/90 in particular that:

- *Lavandulae aetheroleum* used only topically in a small number of individual animals, for infrequent or non-regular treatments,
- treated animals are unlikely to be sent for slaughter during or immediately after treatment,
- *Lavandulae aetheroleum* is not likely to pose a potential risk for the consumers of food derived from treated animals;

the Committee for Veterinary Medicinal Products concludes that there is no need to establish an MRL for *Lavandulae aetheroleum* and recommends its inclusion in Annex II to Council Regulation (EEC)
No 2377/90 in accordance with the following table:

Pharmacologically active substance(s)	Animal species	Other provisions
Lavandulae aetheroleum	All food producing species	For topical use only