

## **Note on Pharmacological Activities of *Melissa officinalis* L.**

**G. Parameswari, S. Meenatchisundaram\*, T. Subbraj, T. Suganya and A. Michael**

Department of Microbiology, PSG College of Arts and Science, Coimbatore, India

\*Corresponding author. Dr.S.Meenatchisundaram E.Mail:drmscbe@gmail.com

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**Lemon balm** (*Melissa officinalis*) is a perennial herb in the mint family Lamiaceae, native to southern Europe and the Mediterranean region. Lemon Balm is used medicinally as a herbal tea, or in extract form. It is claimed to have antibacterial, antiviral properties (it is effective against herpes simplex), and it is also used as a mild sedative or calming agent. At least one study has found it to be effective at reducing stress, although the study's authors call for further research. Its antibacterial properties have also been demonstrated scientifically, although they are markedly weaker than those from a number of other plants studied.

### **Pharmacology Activities of *Melissa officinalis***

#### **Antiviral activity**

Aqueous extracts of Folium Melissae inhibited the replication in vitro of herpes simplex virus type 2, influenza virus A2 (Mannheim 57) and vaccinia virus at a concentration of 10%<sup>1</sup>. A dried aqueous extract of the leaves inhibited the replication of herpes simplex viruses in vitro at a concentration of 200mg/ml<sup>2</sup>. A condensed tannin isolated from an aqueous extract of the leaves inhibited haemagglutination induced by Newcastle disease virus or mumps virus; protected eggs and chick cell cultures from infection by Newcastle disease virus; and prevented haemagglutination by Newcastle disease, mumps and parainfluenza viruses 1, 2 and 3, but not by influenza viruses A and B<sup>3</sup>. A tannin-free polyphenol fraction of an aqueous extract of the leaves was active against herpes simplex and vaccinia viruses in egg and cell culture systems<sup>4</sup>. Aqueous extracts of the leaves have also been reported to have activity against Semliki Forest virus, influenza viruses and myxoviruses in vitro<sup>5</sup>.

#### **Antispasmodic activity**

An ethanol extract of the leaves inhibited histamine- and barium-induced contractions of guinea-pig

ileum in vitro (200mg/ml), while an aqueous extract was inactive. A 30% ethanol extract did not inhibit acetylcholine- and histamine-induced contractions in guinea-pig ileum in vitro at concentrations up to 10ml/ml<sup>6</sup>. The essential oil inhibited contractions in guinea-pig ileum, rat duodenum and vas deferens, and rabbit jejunum and aorta in vitro. The essential oil also exhibited smooth muscle relaxant activity in guinea-pig tracheal muscle (ED<sub>50</sub> 22mg/ml) and in an electrically stimulated ileum myenteric plexus/longitudinal muscle preparation (ED<sub>50</sub> 7.8mg/ml)<sup>7</sup>.

### **Behavioural effects**

Inhalation of the essential oil had a weak tranquillizing effect in mice<sup>8</sup>.

### **Clinical pharmacology**

An open multicentre study of 115 patients with herpes simplex infections of the skin and transitional mucosa demonstrated that external applications of a 1% lyophilized aqueous extract of Folium Melissae in a cream base reduced the healing time of herpetic lesions from 10–14 days to 6–8 days. Treatment with the cream also prolonged the recidivation-free intervals, as compared with other topical virustatic preparations containing idoxuridine and tromantidine hydrochloride. A subsequent randomized, double-blind, placebo-controlled study of 116 patients with herpes simplex infections of the skin and transitional mucosa demonstrated a significant reduction in the size of herpetic lesions within 5 days in patients treated with the same cream ( $P = 0.01$ ), as compared with placebo treatment<sup>1</sup>.

### **References**

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