

# Plants and their Pathogens

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### Pollen morphology of *Ligustrum vulgare* L. (Oleaceae)

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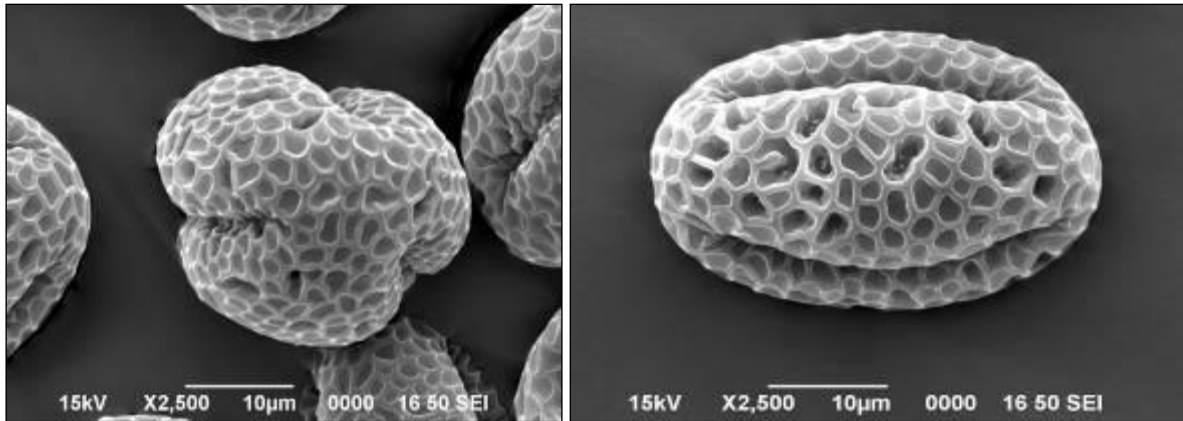
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*Ligustrum vulgare* L. (Common privet or European privet) is a semi-evergreen or deciduous shrub, growing to 3 m (rarely up to 5 m) tall, with panicles of small, often unpleasantly scented white flowers in spring or summer. It is a quite common shrub widespread in Serbia in oak and ash forests, and also cultivated in parks, gardens and hedgerows. Since flowers, producing a lot of pollen and nectar, are attractive for insect pollinators, including honeybees, privet is considered a good melliferous plant. In this study, the pollen of *L. vulgare* was examined by both light microscopy (LM) and scanning electron microscopy (SEM), in order to contribute to palynomorphological studies of Serbian apiflora.

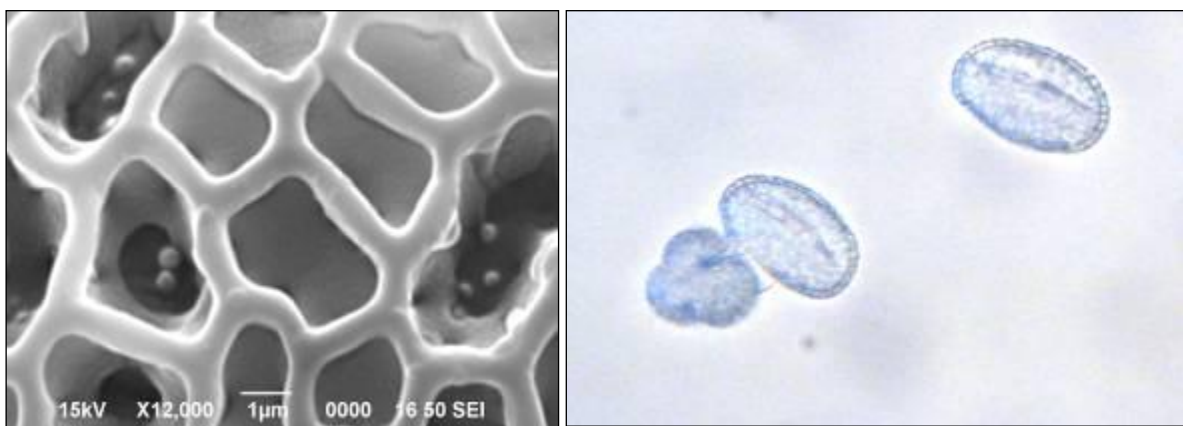
For light microscopy, fully matured anthers were removed from the flowers and pollen were prepared according to the Erdtman's acetolysis method [1]. Pollen was analyzed and photographed using a microscope LEICA 2000 equipped with a digital camera (Leica DC 300) and Leica IM1000 software. For SEM studies, the pollen grains were covered with gold (in BAL-TEC SCD 005 Sputter Coater, 100 seconds in 30 mA) and observed using JEOL JSM- 6390 LV electron microscope at an acceleration voltage of 20 kV. Pollen grains were photographed in polar and equatorial views, and observations and measurements were done on a sample of 50 or more grains for each morphological character. The following features describing pollen grains were examined: size, shape, ornamentation, aperture condition, polarity, symmetry, length of polar axis (P), length of equatorial diameter (E), length of colpi, lumina size and exine thickness.

The pollen grains of *L. vulgare* are isopolar and radially symmetrical. Grains are tricolporate with narrow ectocolpi arranged meridionally, regularly, mean length  $23.7 \pm 2.2 \mu\text{m}$  and 3 endopores that are poorly visible. According to Erdtman's classification [2] they are medium sized. Polar axis (P) is  $35.4 \pm 0.9 \mu\text{m}$ , and equatorial diameter (E) is  $23.6 \pm 0.9 \mu\text{m}$ . Ratio of polar axis/equatorial diameter (P/E) was  $1.50 \pm 0.07$  indicating prolate shape. In polar view grains are circular or triangular with obtuse apices and in equatorial view are elliptic (Fig 1). Exine ornamentation is reticulate (Fig 2). The lumina may be irregular to rounded, polygonal or elongated and muri are high and prominently defined. Average value of lumina size was  $3.2 \pm 0.9 \mu\text{m}$  and the muri width averaged  $0.75 \pm 0.09 \mu\text{m}$ . **Infratectal** granular elements are plainly visible in some lumina. The exine thickness averaged  $1.2 \pm 0.2 \mu\text{m}$ .

1. G. Erdtman, An Introduction to Pollen Analysis. Waltham, Mass.: Chronica Botany Company. p. 239 (1943).
2. G. Erdtman, Pollen Morphology and Plant Taxonomy. Hafner Publishing, New York (1971).
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**Figure 1.** SEM micrographs of pollen grain of *L. vulgare*, in polar (left) and equatorial view (right).



**Figure 2.** Detail of reticulate exine sculpturing of pollen grain of *L. vulgare* in SEM (left) and LM micrograph of pollen grains (x400) (right).