

The Northwest European Pollen Flora, 29

ARALIACEAE

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LITERATURE

Erdtman (1959), Erdtman et al. (1961, 1963), Faegri and Iversen (1975), Godwin (1975), Hyde and Adams (1958), Kuprianova and Alyoshina (1972), Moore and Webb (1978), Nilsson et al. (1977), Rao and Shukla (1975).

INTRODUCTION

The Araliaceae form a cosmopolitan family which is distributed throughout the world with the exception of North Africa, the Middle East and large parts of the U.S.S.R. It comprises 70 genera with ca. 700 species. The only representative in Western Europe is *Hedera helix* L., a member of a genus with five other species in other parts of the world.

Hedera helix is common throughout Western Europe on a wide range of soils although it avoids extremes of acidity, drought and waterlogging. In Scandinavia it extends to about 60°N on the west coast of Norway and has a strongly coastal emphasis in its distribution. It does not extend into the continental mainland east of the Baltic and north of the Black Sea. It is regarded by Hultén as sub-Atlantic, but by Troll as eu-Atlantic (Godwin, 1975). It not only grows under wild conditions, but is also widely cultivated.

Pollen of *Hedera helix* is regularly found in deposits of Atlantic and Sub-boreal age. It is significant for Quaternary palynologists as an indicator of comparatively high winter temperatures (Iversen, 1944).

SPECIMEN EXAMINED

Hedera helix L. — Belgium: Punt s.n. (U); England: Jackson s.n. (BM), Westra 138 (U); Italy: Behrendsen 1361 (U); Malta: Westra and v. Rooden 275 (U); The Netherlands: Punt, fresh material (Anno 1960).

DESCRIPTION OF THE POLLEN TYPE

Hedera helix type

Pollen class: 3-Zonocolporate.

P/E ratio: Suberect to semi-erect.

Apertures: Ectoaperture — colpus, long, narrow, slit-like, slightly sunken; margins irregular; margo present, consisting of a rather broad smooth area without ornamentation around the colpus; ends acute; colpus membrane not visible; fastigium absent, but sexine distinctly raised over the endoaperture thus constricting the colpus; costae colpi present, rather broad, tapering towards the colpus ends. Endoaperture — colpus, rather long; margins distinct, straight but irregular; ends often diffuse, slightly tapering; costae present but narrow.

Exine: Sexine thicker than nexine, thicker at poles than at equator. Sexine 1 of short, indistinct columellae. Sexine 2 a semi-tectate layer.

Ornamentation: Reticulate. Reticulum coarse in mesocolpium and at apocolpium, lumina distinctly decreasing in size towards the colpi. Muri simpli-, dupli- or multicolumellate, the columellae fused only at their tips. Lumina very irregular in outline and size, angular. Columellae circular in cross-section.

Outlines: Equatorial view — slightly rhombic to circular or elliptic. Polar view — distinctly triangular, sides straight or a little convex, apertures in the obtuse corners. Polar caps obtuse.

Measurements: Glycerine jelly — P 34-(36.5)-41 μm ; E 28-(32.5)-37 μm ; P/E ratio 1.02-(1.12)-1.28; exine varying from 2.5 to 3.5 μm . Silicone oil — P 28-(31.5)-34 μm ; E 23-(28.0)-31 μm ; P/E ratio 1.06-(1.12)-1.20.

Species: *Hedera helix*.

Comments

The pollen of *Hedera helix* is easily recognized by a combination of features which are characteristic of the Araliaceae as a whole. These are: a distinctly triangular outline in polar view; a more or less rhombic outline in equatorial view; a distinctly reticulate ornamentation; a distinct endoaperture. In addition to these family features, *Hedera* pollen has a number of particular characters of its own: the lumina of the reticulum are markedly smaller near the colpi; there is a broad margo bordering the colpi where the reticulum is absent; the sexine is thicker and coarser at the poles than at the equator. It is frequently noted in the literature (e.g. Erdtman et al., 1961, 1963; Faegri and Iversen, 1975) that the muri of *H. helix* are duplicolumellate, but this is not always the case. Several specimens examined in the course of this study were predominantly simplicolumellate.

PLATE I (all figures $\times 2000$, except where otherwise stated)

Hedera helix L. (figs.1—4 Behrendsen 136; figs.5—6 Westra 257)

1. Scanning electron micrograph: equatorial view.
2. Scanning electron micrograph: reticulate ornamentation ($\times 10\ 000$).
3. Mesocolpium with raised sexine above endoaperture.
4. Scanning electron micrograph: ectocolpus with the raised sexine above endoaperture ($\times 10\ 000$).
5. Ectocolpus, sexine raised above endoaperture.
6. Endoaperture, with indistinct ends.

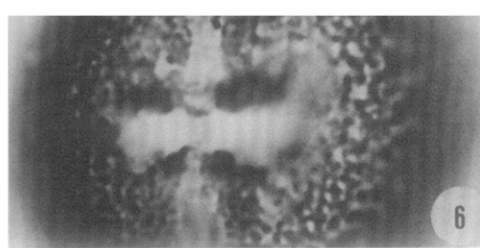
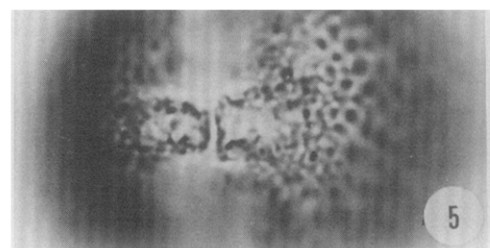
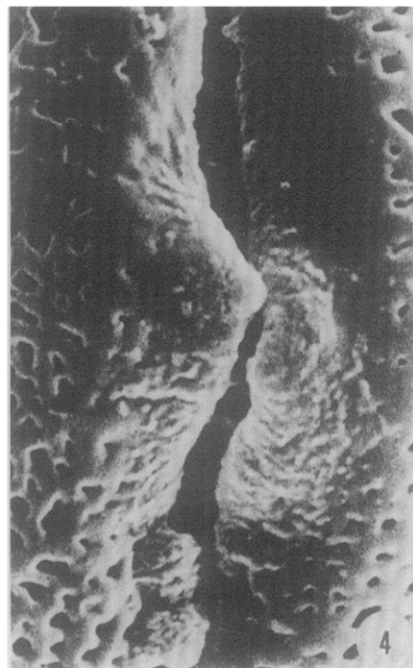
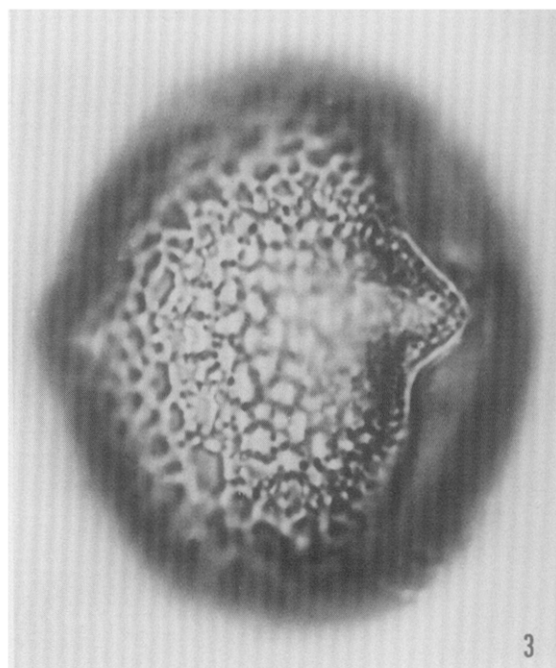
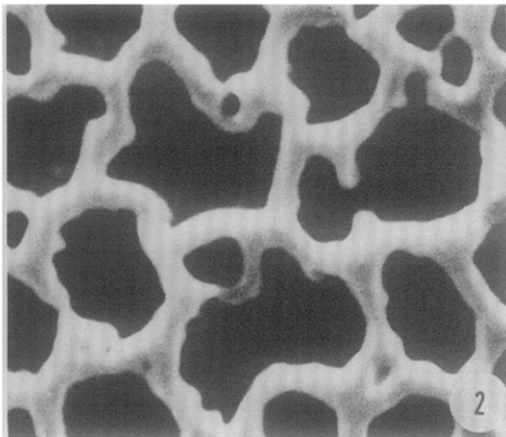
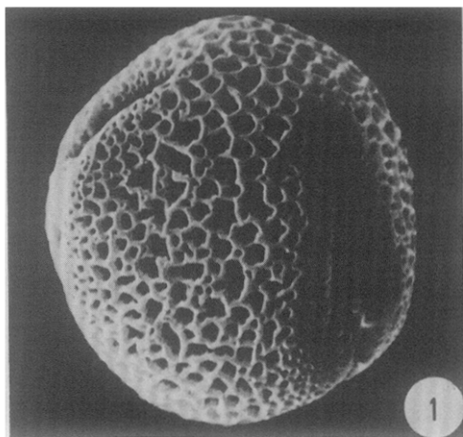
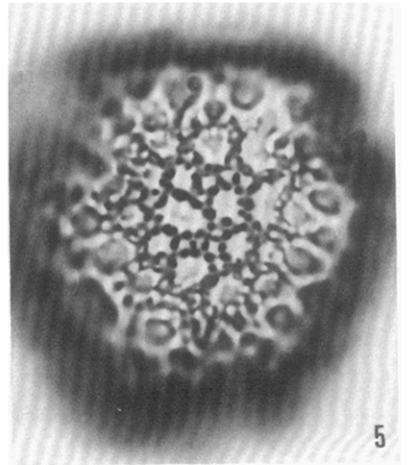
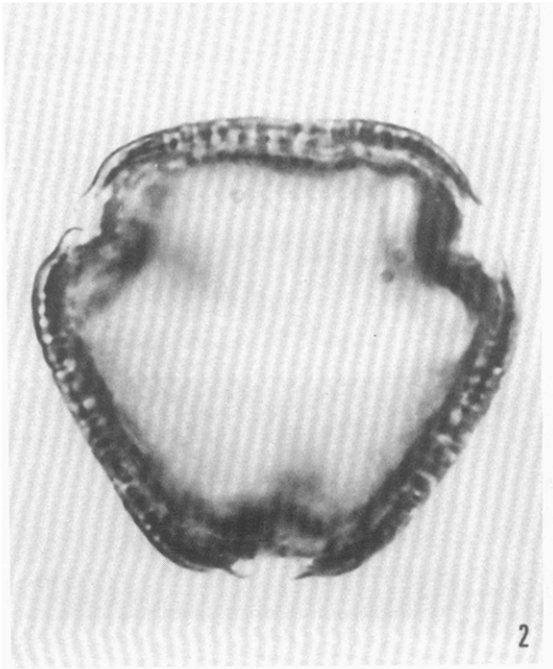
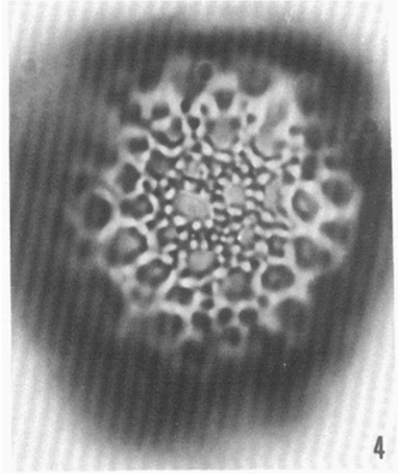
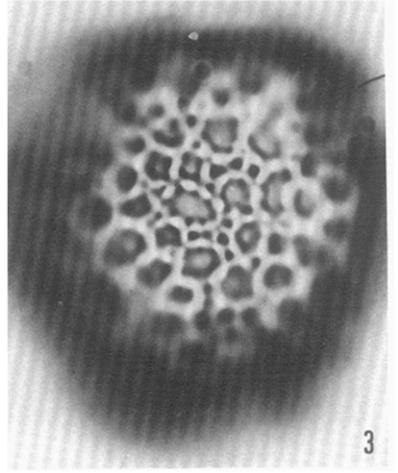
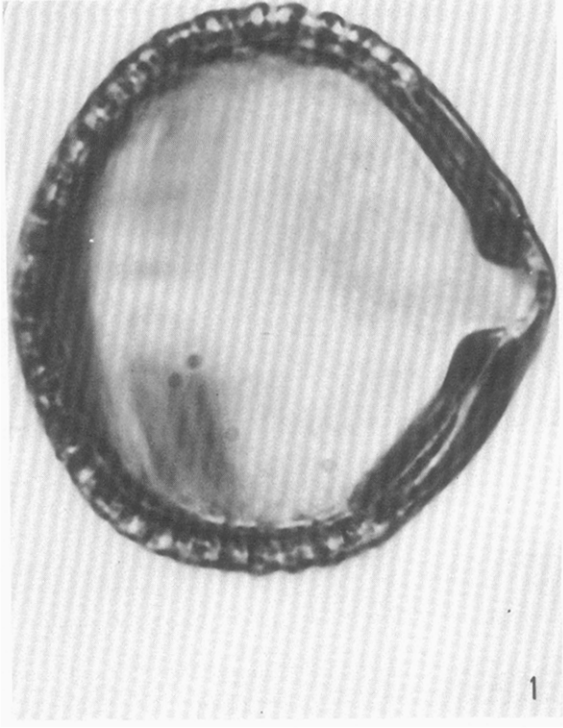
PLATE I (*Hedera helix* type: *H. helix*)

PLATE II (*Hedera helix* type: *H. helix*)



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PLATE II (all figures × 2000, except where otherwise stated)

Hedera helix L. (figs.1—5 Behrendsen 136)

1. Equatorial view; cross-section, sexine thicker at the poles.
2. Polar view; cross-section, sexine thicker than nexine.
3. Ornamentation at high focus.
4. Ornamentation at medium focus.
5. Ornamentation at low focus; double row of columellae under the muri.