

## **USE OF POLARIZED LIGHT IN MICROSCOPIC STUDY OF LICHENS**

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The use of polarized light, (with one filter between the light source and the specimen and one between the specimen and the eye) has been described by Kofler (1956).

As pointed out by Brodo (1984), "crossed-Nichols" illumination, which renders crystalline or refractive material bright against a dark background, is essential for distinguishing between minute oil droplets and granules, or between air pockets and large colorless crystals in the amphithecium, and for seeing granules in a strongly pigmented epihymenium.

Use polarized light to see the algal layer, cortex, and other tissues in thick sections.

Use polarized light to distinguish the subhymenium, hypothecium, etc. from each other.

Sometimes the paraphyses and asci refract, appearing to glow in polarized light. This is a common phenomenon (Brodo, pers. comm.) In many cases where this phenomenon occurs, for one reason or another there are no spores (or at least no well-developed ones) in the hymenium.

Some types of refraction may occur in areas where the section changes in thickness (e.g., at the edge of the structure, or at the boundary between two tissues) or bends out of the plane of the section (Nash, pers. comm.). Comparison of different sections will usually show that such patterns are artifacts.

The degree or appearance of refraction is affected by the thickness of the section; thin areas usually refract less than thick areas.