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A MORPHOLOGICAL AND CHEMICAL STUDY OF THE LICHEN GENUS *HYPOGYMNIA* IN NORTH AMERICA

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The lichen genus *Hypogymnia* is widely distributed throughout the world, in such places as Europe, Asia, Africa, Australia, New Zealand, Japan, and North America. Currently, there are twenty-two recognized species of *Hypogymnia* in North America, of which seven are newly described species within the past eighteen years. In addition, one species of *Hypogymnia* was newly reported in North America. *Hypogymnia* has not been thoroughly investigated. There are at least four new species from western North America, tentatively recognized by Lawrence Pike, which have not yet been described. Furthermore, a complete key to the *Hypogymnia* species of North America has yet to be constructed.

My morphological and chemical study of the genus *Hypogymnia* was performed on a sample of North American specimens collected from the western United States, southern Canada, the Great Lakes region, and the eastern United States. The morphological characteristics of each lichen specimen were examined. Characteristics such as type of branching pattern, the presence or absence of soredia and isidia, and the coloration of the medulla are useful in distinguishing between different species of *Hypogymnia*. Chemical studies included preliminary spot test screening of the cortex and medulla of the lichen specimen, followed by a thin layer chromatographic study to attempt to identify the chemicals present in each specimen, and to evaluate the chemical variation within each species.

In this study, specimens of sixteen of the twenty-two described species of *Hypogymnia* have been examined, as well as specimens of the four new, undescribed species (on loan from the U.S. National Herbarium at the Smithsonian Institution). Patterns of morphological variation and chemical variation are being identified for each species for the purpose of comparison. To date, previously unreported, additional chemical variation has been detected in *Hypogymnia* imshaugii. A key to the North American species of *Hypogymnia* is under preparation.