

Samantha Fischer (ABMI technician) did the original research and key construction. This is a difficult and speciose genus, but there is uncertainty around the validity of current species concepts, as well as the importance of chemistry and traits such as vagrancy in separating species. For that reason, I'm using broader species and restricting the key to species previously documented in Alberta.

\*Care should be taken to examine each species thoroughly before keying it out, noting degree of adnation/attachment, lobe shape and width, presence of lobules, pycnidia, isidia, soralia, apothecia, maculae, pruina, type of rhizines, color of upper and lower surface – if a specimen doesn't fit the species included below, try keying it out in Hale 1990 or Nash 2004.

### DICHOTOMOUS KEY – *Xanthoparmelia*

- 1a. Thallus sorediate, upper and lower cortex dull..... **Arctoparmelia or Parmeliopsis**  
(No species of *Xanthoparmelia* with soredia currently listed for Alberta. However, such species do exist and could be confused with some members of *Arctoparmelia*. See the Yellow foliose key).
- 1b. Thallus not sorediate..... 2
- 2a. Thallus isidiate..... 3
- 3a. Lower and rhizines black; medulla K+ yellow to orange (stictic acid). Isidia initially globose, soon cylindrical .... **X. conspersa**
- 3b. Lower surface pale brown to dark brown; medulla K+ yellow becoming dark, rusty red (salazinic acid). Isidia initially subglobose, becoming cylindrical to coralloid and branched ..... **X. mexicana**
- 2b. Thallus not isidiate..... 4
- 4a. **Mostly terricolous:** thallus growing mostly free on soil or primarily on soil but attached to small pebbles, vegetation or debris; lobes convex; ranging from vagrant to semi-vagrant to loosely attached throughout..... 5
- 5a. Species vagrant or semi-vagrant, most or all lobes not attached to substrate..... 6
- 6a. Surface emaculate; lower surface pale brown to smoky gray-brown, blackened in older parts of the thallus in some broader forms with abundant black forked rhizines; typically lobes strongly inrolled and completely vagrant/unattached..... **X. chlorochroa**
- 6b. Surface maculate; pycnidia lacking; lobes branching dichotomously and often growing parallel to ground with lower lobes attached and upper lobes growing free; lobes in-rolled just at margins, forming contrasting yellow edges to the brown lower cortex..... **X. camtschadalis**
- 5b. Lobes convex and typically clasping the substrate throughout; lower surface pale at center but can be black close to lobe tips with rather sparse rhizines..... **X. wyomingica**
- 4b. **Saxicolous:** thallus growing entirely attached to rocks; lobes usually plane (sometimes convolute at tips)..... 7
- 7a. Medulla tests K-, PD-; lower cortex and rhizines pale brown..... **X. subdecepiens**
- 7b. Medulla with PD and/or K test positive; lower cortex brown to black..... 8
- 8a. Lower cortex and rhizines black; upper lobes lacinate, emaculate, shiny; medulla K+ yellow to medium orange (stictic, ± constictic, ± norstictic acids)..... **X. angustiphylla**
- 8b. Lower cortex and rhizines pale brown to brown; medulla K+ yellow becoming dark, rusty red (salazinic, ± consalazinic acids)..... 9
- 9a. Lobes tightly adnate to rock, typically cannot be removed intact from rock; lacking lobules..... **X. lineola**
- 9b. Lobes loosely adnate to rock, often removable at least in part; lobulate or not..... 10
- 10b. Upper cortex maculate (may be weak) thallus typically lacking lobules but with overlapping lobes; occasionally with lobaric acid (TLC)..... **X. stenophylla**
- 10a. Upper cortex emaculate to rarely weakly maculate; thallus centrally lobulate; lacking lobaric acid (TLC). ..... **X. coloradoensis**