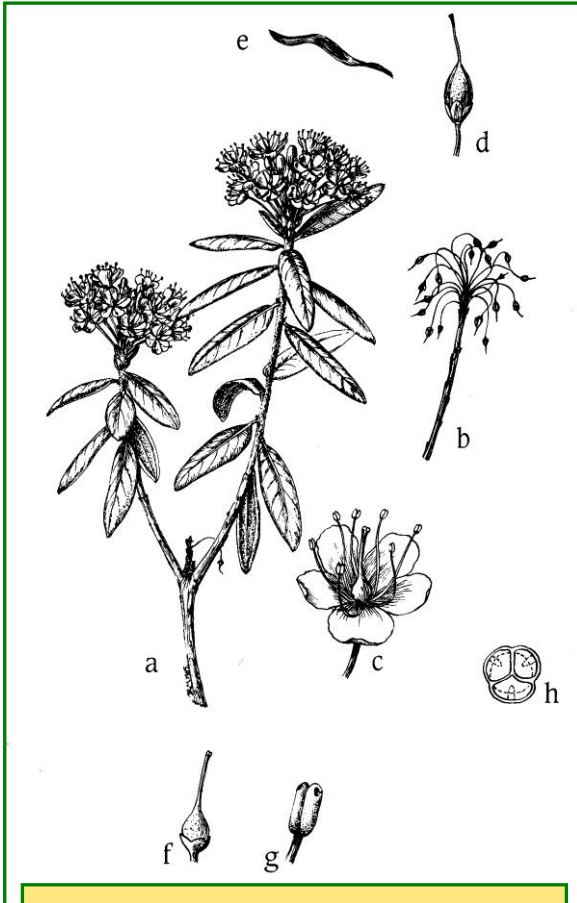


Scientific Name: *Rhododendron groenlandicum* Oeder.

Family: *Ericaceae*

Common Names: Labrador tea, bog Labrador tea, rusty Labrador-tea, St. James' tea, marsh tea, swamp tea, Hudson's Bay tea



Rhododendron groenlandicum
a. flowering branch b. seed head
c. flower d. individual capsule e. seed
f. stigma g. anther h. pollen.

Plant Description

Perennial, erect, aromatic shrub, 30 to 80 cm high, rhizomatous, 15 to 48 cm deep (Flinn and Wein 1977, Viereck and Schandelmeier 1980); soil and moisture characteristics greatly influence length and depth of rhizomes (Gucker 2006); leaves alternate, oblong to elliptic evergreen, 1 to 5 cm long, deep

green above and densely rusty-tomentose beneath; terminal umbel of white flowers, each 5 to 8 mm long.

Fruit: Puberulent, oval to oblong capsules 5 to 7 mm long, in clusters (Gray 2011, Gucker 2006).

Seed: 2 to 3 mm long, needle-shaped, straw-coloured, central embryo darker, striate to wavy texture (Gucker 2006).



***Rhododendron groenlandicum* plant in flower.**

Habitat and Distribution

Commonly found in acidic and moist organic substrates such as bogs, muskegs, swamps and wet coniferous woods.

Soil: Tolerant of acidic and infertile soils (Tannas 1997). In areas of pH ranging from 2.9 to 6.9 (Gucker 2006).

Established in well drained to poorly drained soils (Gucker 2006).

Distribution: Found in northern Alberta, Rocky Mountains, southwestern Alberta and west-central Alberta. Widespread in the northern parts of the circumpolar boreal forest, sub arctic and arctic

tundra. Alaska, Yukon, District of Mackenzie to Hudson bay, northern Quebec, Newfoundland south to Oregon, British Columbia, Alberta, Saskatchewan, Manitoba, Great Lakes, Pennsylvania, New Jersey (Moss 1983).



Phenology

Flowers late May to early June. Fruits ripen late August to fall (Gucker 2006).

Pollination

Self and cross pollinated by a variety of insects including *Apis*, *Bombus* and *Andrena* in particular (Reader 1977).

Possibly wind pollinated (Knuth 1909).

Seed Dispersal

Seed are very small and are easily dispersed by wind (Gucker 2006).

Genetics

$2n=26$ (Moss 1983).

Symbiosis

Forms ericoid mycorrhiza with a diverse assemblage of fungal endophytes (e.g., *Hymenoscyphus ericae*) (Hambleton et al. 1999, Massicotte et al. 2005).

R. groenlandicum is a host of the root endophytic fungus *Phialocephala fotinii* (Addy et al. 2000).

Seed Processing

Collection: Capsules are easily plucked from the low bushes.

Seed Weight: 0.01 to 0.04 g/1,000 seeds (0.02 average).

Harvest Dates: Late August. September 1 to September 30 (Formaniuk 2013).

Cleaning: Air-dry fruits. Remove large chaff and crush remaining material. Sieve to remove seeds from chaff using appropriate size screens (0.85 mm). Small chaff and dust can be removed by winnowing. If capsules are intact merely open capsules and empty seeds; sieve or winnow to remove chaff and dust.

Storage Behaviour: Orthodox, seeds can be dried, without damage their longevity increases with reductions in both moisture content and temperature (Royal Botanic Gardens Kew 2008).

Storage: Store dry (Karlin and Bliss 1983). Due to growth need of light, small seed size and observed decreasing growth productivity with increasing age, potential for seed banking is limited (Gucker 2006). 100% viability following drying to a moisture content of 15% and freezing for 1 month at -20°C (Royal Botanic Gardens Kew 2008).

Longevity: Usually does not exceed 1 year (Karlin and Bliss 1983).

Up to 3 years in a cool dry plastic sealable bag (Schultz et al. 2001).

Propagation

Germination: Seed germination decreases with age. Fresh seeds: 58% in 25 days. Stored seeds: 16% after 1 year; up to 1 year old (Karlin and Bliss 1983). Smreciu et al. (2008) found similar results in



northeastern Alberta populations: 29% in 30 days with fresh or 1 year old seeds but not 2 year old seeds.

100% germination occurred when seeds germinated on a 1% agar media at temperatures of 30°C (8 hours day/16 hours night) (Royal Botanic Gardens Kew 2008).

Pre-treatment: No stratification required (Formaniuk 2013); 30 days cold stratification (Wood pers. comm.).

4 weeks cold stratification (Nichols 1954). Karlin and Bliss (1983) concluded that germination occurred without cold stratification.

Relatively high constant temperatures (15 to 19°C) are required for germination.

Germination rates increase in the presence of light. Germination and establishment in water-saturated substrates can occur, however seedlings will most likely be short-lived because of the small-size and slow growth rate of the seedlings (Karlin and Bliss 1983).



Direct Seeding: No significant emergence observed, only small seedlings observed after 5 years on reclaimed oil sands sites in northeastern Alberta.

Vegetative Propagation: Rhizome division may be possible.

Cuttings (taken in mid-December) root well (Dirr and Heuser 1987). Calmes and Zasada (1982) found cuttings taken in July and kept outdoors to be the most productive (Gucker 2006).

Layering occurs naturally and is an effective manner in which the plant establishes itself in an area (Gucker 2006).

Greenhouse Production: Gucker (2006) found that best growth occurred at a pH of 5.5, less growth at a pH of 3.5 and no growth at a pH of 8.5. Best growth in lighted areas of peat and or moss substrates (Gucker 2006).

Greenhouse Timeline: 26 weeks in the greenhouse until out-planting. Can be over wintered for a spring or fall planting the following season (Wood pers. comm.). Grow for 180 days before harvest (Formaniuk 2013).

Aboriginal/Food Uses

Food: Used as tea (Gray 2011, Marles et al. 2000, Turner 1997, Wilkinson 1990). Drinking the teas has been said to cause dizziness and drowsiness and diarrhoea so caution is advised (Gray 2011, Wilkinson 1990). Can be used as a substitute for bay leaf in stews, sauces and soups (Gray 2011). Berries stewed and served with smoked fish (Royer and Dickinson 1996).

Medicinal: Source of vitamin C (Gray 2011). The leaves (chewed or made into tea) can treat stomach flu, chills, pneumonia, headaches, diarrhoea, heart ailments, arthritis, whooping cough, teething pain, kidney ailments, and relieve tension. Powdered leaves relieve burns and eczema. Leaf decoctions can be used as an eye-wash to relieve dry eyes (Royer and Dickinson 1996, Turner 1997). Boiled whole plants can treat chest pains and hair loss. Branches can act as an antibiotic against *E. coli* and *Bacillus subtilis* (Gray 2011). Peeled root decoction is used to treat colds and clean out stomach (Marles et al. 2000).

Other: Berries provide a red dye (Royer and Dickinson 1996). Crushed leaves act as an insect repellent and can help deter rodents from foodstuffs (Gray 2011).

Wildlife/Forage Uses

Wildlife: Leaves and twigs are browsed by caribou and moose although it is a minor component in the



diet (Gucker 2006). Unpalatable to snowshoe hares and other rodents because of the presence of germacrone concentrations (known as a chemical defence) in the leaves and internodes of the plant (Reichardt et al. 1990).

Provide cover for a wide range of small wildlife species (Gucker 2006).

Livestock: Unpalatable to livestock (Tannas 1997). Contains component considered toxic to livestock (Gucker 2006).

Grazing Response: Moderate tolerance to browsing (Tannas 1997).

Reclamation Potential

Naturally re-colonizes sites disturbed by logging, burning and mining (Gucker 2006). Found to re-establish naturally in areas previously disturbed by road construction or fire (Gucker 2006).

Shows greater reproductive effort in disturbed sites as opposed to undisturbed sites (Gucker 2006).

May act as a indicator to sites contaminated with lead (Pugh et al. 2002).

Useful in revegetation of fertile soils (Tannas 1997).

Commercial Resources

Availability: Labrador tea is available commercially in plant form in Alberta, but not widely.

Seeds have been collected by the Oil Sands Vegetation Cooperative for use in the Athabasca oil sands region.

Cultivars: None are known.

Uses: Essential oil for aromatherapy, ornamental shrub.

Notes

Synonyms – *Ledum groenlandicum* Oeder.

R. groenlandicum is listed as 96% intact (less occurrences than expected) in the Alberta oil sands region (Alberta Biodiversity Monitoring Institute 2014).

Re-establishes itself rapidly following fire due in part to the high temperature requirements for germination (Karlin and Bliss 1983).

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