Juniperus communis L.

Halkomelem (Upriver): t'thəl'ėeltəl
Ucwalmícwts (Lílwat): tsíktsəkt-az'

English Name: common juniper
Family: Cupressaceae (Cypress family)

Identifying Characteristics:
Juniperus communis is a small slow-growing evergreen shrub that typically reaches 0.5 to 3.0 m (or taller), with branches spreading 2 – 3 m somewhat horizontally (Brand, 2015). Plants can live for over 170 years (Turmenstein, 1999), and there are un-verified reports of a common juniper older than 600 years (Earle, 2019).

Common juniper can also grow in a columnar form that is known to reach heights of 15m (Bonner and Karrfalt, 208); on the KPU Langley campus we have planted the columnar form in the Logan Creek Decolonization Project area. Bark is thin, reddish-brown, scaly, and shredding, often exfoliating into strips.

Figure 1. Common juniper characteristics.

The leaves are silvery green and needle-like, with a hint of a white stomatal channel on the upper side and in whorls of 3 on each stem. The cones are fleshy, berry-like and in the first year are green in colour, ripening to blue-black in the second year (Figure 2).

Figure 2. Ripe and unripe berries.

Distribution:
Common juniper is the most common, widely distributed woody plant on the planet (Farjon, 2013). It is found throughout British Columbia and northern altitudes and elevations across Turtle Island (North America), Europe, northern Asia and Japan. According to the International Union Conservation of Nature (IUCN), *Juniperus communis* is a plant of least conservation concern because it has an increasing population trend (Farjon, 2013).

Figure 3. Global Distribution of *Juniperus communis*.

Habitat:
Common juniper is an important understory species that thrives in harsh exposed environments with little competition. Common juniper is shade-intolerant meaning it is often found on dry, gravelly slopes, and open environments in soil regimes ranging from xeric to hydric. It's amplitude for the full gradient of soil moisture conditions allows common juniper to inhabit wet and dry coastal areas, lowlands, and alpine ecosystems.

Reproduction and Cultivation:
Juniperus communis is dioecious, having female cones on separate plants than male cones. Male flowers appear as yellow blossoms to release pollen, and female flowers are in small scales clusters, which become berry-like. Fruits are berry-like seed cones, 6-10 mm in diameter and while developing in the first season are pale green. In the second season, the berries ripen from pale green to red and then become glaucous bluish to black when mature. Each cone has 1-3 seeds each which are dispersed when birds or mammals eat the berry-like cones. A gram of seeds has 56 to 120 seeds (Johnsen and Alexander, 1974 cited in Bonner and Karrfalt, 2008). Cultivars are propagated from cuttings.

The digestive process may help germination when consumed and distributed by birds and animals. It has been found that there is a slightly better chance of cuttings from female plants rooting than those from male plants. Germination and seedling establishment is challenging, as seeds have a thick seed coat with a dormant embryo that needs extended warm temperatures and subsequent cold moist temperatures (Turmenstein, 1999). Macerate harvested seeds in water and float away pulp and empty seeds. Warm stratification requires temperatures of 20°C at night and 30°C in the day for 60 to 90 days followed by cold moist stratification at 5°C for 90 days (Rose et al, 1998). Sow the stratified seeds in the fall or spring and cover with a thin layer of sand. When

stratification is successful, seeds will germinate in two weeks or less. Seedlings may change colour due to the stress of freezing weather, reduced watering (drought), or increased light intensity if removed from shade protection. Seedlings are ready for planting as three-year old stock (Johnsen and Alexander, 1974 cited in Bonner and Karrfalt, 2008).

Interactions and Human Interest:
Common juniper has been of human interest and use for centuries featuring in gastronomic, medicinal, and ritual purposes by many different cultures around the world. The first recorded medical use was in 1500 BCE to cure tapeworm infestations. Ancient Romans used juniper for digestive issues, including flatulence, and juniper berries were a cheap replacement for black pepper. Medicinally, common juniper is considered a treatment for diet-controlled diabetes, as bark decoctions release insulin from the pancreas (Asgary et al, 2014; Bais et al, 2014).

Ancient Greeks consumed juniper berries when competing in their Olympic Games, believing the berries increased stamina. The berries were ground into a table spice in Medieval England and Scotland, while decoctions of the plant were used in the Middle Ages to induce miscarriages of unwanted pregnancies. Juniper berries stimulate the contraction of uterine muscles, which led to the phrase "giving birth under the savin tree"; savin being an old name for juniper (Gin Foundry, 2014). Berries have been dried, roasted, and ground as a substitute for coffee.

Juniper wood is burned for the scent of its smoke, and was once used in purification rituals of temples, as well as in casting out witchcraft in central Europe, and was burned in doctors' masks during the plague to cover the scent and 'purify' the air they were breathing (Gin Foundry, 2014).

In horticulture, common juniper is an ornamental garden plant, and in land reclamation and areas that need erosion control or a security border (Gin Foundry, 2014). There are several cultivars (cultivated varieties), notably 'Compressa', 'Depressa Aurea', 'Golden Carpet', and 'Sentinel'.

Ethnobotany:
On Turtle Island, Turner (2014, 1.420-27) notes that Indigenous people consumed the berry as a "cure-all" medicine, and an infusion of branches (and roots) was drunk for many purposes such as a laxative, as an eyewash, to ease childbirth, for aching muscles, colds, tuberculosis, fevers, and pneumonia. Tea made from the berries helped ease back pain. As a medicine, the Haida believe the entire infusion was to be drunk to be effective (Turner, 2014, 2.302). In Upriver Halkomelem, common juniper is t'thəl'ə̓eltəl which translates to 'heart medicine'. *Juniperus communis* is more common in the Interior of BC, and various First Nations have used decoctions to purify hunters and gatherers, protect babies from witchcraft, and a fumigant to counter death and illness (ibid.) In technology, ripe cones were used to extract a brown dye (Turner, 2014, 2.343).

Harvesting:
Berries form in one year and ripen variably over the following year, resulting in a harvest period from August to October in the second or third year (Rose et al, 1998). Handpick, rake, or shake the ripe berries onto a tarp. Juniper berries are used as an aromatic and flavouring in food and beverages by many cultures. Two recipes follow.

Recipe: Braised Red Cabbage

Juniper berries are often used to flavour cabbage fermented into sauerkraut. The following recipe pairs juniper and apple in a slow-cooked red cabbage dish that could be served alone or as a side vegetable with roasted meats such as duck, goose, chicken, or beef.

Ingredients

2 tablespoons unsalted butter (or oil if vegan)
1 medium red onion, halved and sliced thinly into slivers
1 teaspoon chopped fresh thyme
8 -10 juniper berries, crushed
2 bay leaves
sea salt
1 large tart apple (or equivalent volume of crabapples), peeled, cored, and diced
l kg red cabbage, outer leaves discarded, cored, and sliced thinly
125 ml natural apple-cider vinegar
250 ml apple cider (or water)
2 teaspoon brown sugar
Freshly ground black pepper

Instructions

Melt butter or oil in a large heavy pot over medium heat and add onion, thyme, juniper berries, bay leaves, and a generous pinch of salt; cook, stirring occasionally, until softened and just beginning to brown, 8 to 10 minutes. Stir in diced apple, then add cabbage and stir. Cook for about 15 minutes, turning cabbage over in pot until soft and wilted. Add vinegar, apple cider, and brown sugar; stir to mix. Cover, reduce heat to low, and cook about 45 minutes more, stirring occasionally, until cabbage is meltingly soft, and has a lovely purply-blue colour. Then increase heat to high and cook until juices are reduced and pan is almost dry, about 5 minutes. When ready to serve, remove juniper berries, bay leaves and thyme stems, taste, and adjust seasoning as necessary. Serves 6-8.

Recipe: Gin

Seed cones (juniper berries) are used to flavour gin, and alcoholic spirit, which is said to have started in the nineteenth century in the Scottish Highlands, where the berries were exported to Dutch gin distillers. To be called a gin, the spirit must have a predominant flavour of juniper, which can be enhanced with other botanical flavourings. The berries are also used to flavour other drinks such as Swedish health beer and a French drink called 'genevrette' which is made by fermenting juniper berries and barley (Gin Foundry, 2014).

Since the flavour profile changes with maturation, berry harvesting time changes depending on the purpose for the fruit. Younger berries have a woodier pine tang, and with aging it acquires a citric flavour. Berries are almost always crushed before being used as a spice, and are most often used dry in gin production, although their flavour and odor is strongest right after harvesting (Gin Foundry, 2014).

Note:

To make gin, you need to have distillation equipment.

The federal requirements for obtaining a license to distill spirits are regulated by Canada Revenue Agency (CRA) under the *Excise Act, 2001* which requires submission of an L63 *Licence and Registration Application* form (https://www.canada.ca/en/revenue-agency/services/forms-publications/forms/l63.html). Additionally, to manufacture spirits in British Columbia, you must have a manufacturer's license issued by the Liquor and Cannabis Regulation Branch (LCRB), more information about this can be found at https://www2.gov.bc.ca/gov/content/employment-business/business/liquor-regulation-licensing/liquor-licences-permits/applying-for-a-liquor-licence-or-permit/manufacturer-liquor-licence

Ingredients

To make about 10 litres of gin you will need:

200-250 mg Juniper berries (age is your choice as the flavour varies)
100 to 150g dry botanicals
water – lots – could be a signature e.g. from a glacier or spring, or peat bog

Botanicals: beyond the primary flavour of juniper, the botanicals added to the spirit distinguish your gin from all the rest. For example, in Canada Ungava Gin® is a distinctively yellow-coloured gin made from a blend of six botanicals wild-harvested from the Ungava Peninsula in Nunavik: *Juniperus communis* (Inuit: qisiqtutauyak or Nordic juniper), *Rhododendron groenlandicum* (Inuit: mamaittuqutik or Labrador tea), *Rhododendron subarcticum* (Inuit: ukiurtatuq or Arctic blend), *Rubus chamaemorus* (Inuit: arpiqutik or cloudberry), *Empetrum nigrum* (Inuit: paurngaqutik crowberry), *Rosa* sp. (Inuit: ogininaga or wild rose hips). Typical gin botanicals might include coriander, cardamom, angelica, orange peel, orris root, elderberry, fennel, lemon grass, or lavender with considerable variation between products (Newman, 2019).

Instructions
Macerate botanicals in 40% neutral alcohol for about 24 hours, distill and dilute with water to 40% which is the optimal strength for holding flavour. Distill once more, dilute with water back to 40% and let rest for 2-3 weeks. This allows the flavours to blend and improve balance (Love Brewing, 2019).

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Images:

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