

CERASUS GERMOPLASMA USE AND ITS IMPORTANCE NOWADAYS, FOR A SUSTAINABLE DEVELOPMENT

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Abstract:

Cerasus is the scientific name for the sour cherry, a species of cherry native to Europe and Asia. Germplasm refers to the genetic material of living organisms, such as seeds, tissues, or organs, that can be used for plant breeding and conservation.

The use and importance of Cerasus germplasm today are significant in various fields, including agriculture, food industry, and medicine. Here are some examples:

Agriculture: Cerasus germplasm is used for plant breeding to develop new sour cherry cultivars with improved traits, such as disease resistance, higher yield, and better fruit quality. These new cultivars can benefit farmers by reducing production costs and increasing profitability.

Food industry: Cerasus germplasm is used to produce sour cherry products such as juice, jams, and preserves. Sour cherries are also used as a flavoring in many food products, including baked goods, candies, and ice cream.

Medicine: Cerasus germplasm contains compounds such as anthocyanins and flavonoids that have antioxidant and anti-inflammatory properties. These compounds have been linked to various health benefits, including reducing the risk of heart disease, cancer, and Alzheimer's disease.

Conservation: Cerasus germplasm is also important for the conservation of genetic diversity. As with many other crops, the genetic diversity of Cerasus has been threatened by human activities such as deforestation, habitat destruction, and climate change. By conserving Cerasus germplasm, we can ensure the availability of genetic resources for future generations.



• Results and discussions

- Cerasus germplasm can be processed in various ways to make a variety of products. Here are some common ways of processing Cerasus germplasm:
- Canning:** Canned cherries are a popular product made from Cerasus germplasm. The cherries are first pitted and then packed into cans with syrup or water. They can be used in a variety of recipes, such as pies, cobblers, and sauces.
- Freezing:** Cerasus germplasm can be frozen for later use. The cherries should be washed, pitted, and then spread out on a baking sheet in a single layer to freeze. Once frozen, they can be stored in a freezer-safe container for up to six months.
- Drying:** Cerasus germplasm can also be dried to make dried cherries. The cherries are first pitted and then dried in a dehydrator or oven. Dried cherries can be used as a snack or in baking recipes.
- Juicing:** Cerasus germplasm can be juiced to make cherry juice. The cherries are first pitted and then processed through a juicer. The juice can be consumed as-is or used as a base for other beverages.
- Distilling:** Cerasus germplasm can also be used to make cherry brandy. The cherries are fermented with sugar and yeast to create a cherry wine, which is then distilled to create brandy. Cherry brandy can be consumed as-is or used as an ingredient in cocktails.
- Jam and Preserves:** Cerasus germplasm can be used to make jams and preserves. The cherries are first pitted and then cooked with sugar and pectin to create a thick, spreadable mixture. The jam or preserves can be used as a topping for toast or as an ingredient in baked goods.
- Chocolate-Covered Cherries:** Cerasus germplasm can also be used to make chocolate-covered cherries. The cherries are first pitted and then dipped in chocolate. The chocolate-covered cherries can be consumed as a snack or used as a dessert ingredient.

• Introduction

- Here are some additional details about the use and importance of Cerasus germplasm:
- Agriculture:** Cerasus germplasm is used in plant breeding programs to develop sour cherry cultivars that are adapted to specific growing conditions and have desirable traits such as high yield, disease resistance, and good fruit quality. These new cultivars can help farmers increase productivity and profitability by reducing production costs and increasing market value.
- Food industry:** Sour cherries are used in the food industry to produce a variety of products such as juice, jam, and dried fruit. The high content of anthocyanins in sour cherries makes them an attractive ingredient for food manufacturers looking to develop products with a natural colorant or antioxidant properties.
- Medicine:** The bioactive compounds found in Cerasus germplasm have been the subject of numerous studies that have shown potential health benefits. For example, the anthocyanins in sour cherries have been linked to reducing inflammation, lowering blood pressure, and improving cognitive function. The phenolic compounds in sour cherries have also been shown to have anti-inflammatory, anti-cancer, and anti-diabetic properties.
- Conservation:** Cerasus germplasm is important for the conservation of genetic diversity within the species. Genetic diversity is essential for the long-term survival of a species as it provides the basis for adaptation to changing environmental conditions, resistance to pests and diseases, and the development of new traits through natural selection or breeding programs.
- Efforts to conserve Cerasus germplasm include the establishment of seed banks, field collections, and in situ conservation programs. These programs aim to preserve the genetic diversity of Cerasus and ensure its availability for future generations.

• Material and methods

- Cerasus is a genus of flowering trees and shrubs that includes sour cherries and other species. To cultivate and treat Cerasus germplasm, you should consider the following:
- Soil Requirements:** Cerasus germplasm requires well-drained, fertile soil with a pH of 6.0 to 7.0.
- Climate:** Cerasus germplasm grows well in a temperate climate with a cool winter and warm summer.
- Planting:** Cerasus germplasm is usually propagated by grafting or budding. The plants should be planted in the spring or fall, and the planting hole should be deep enough to accommodate the root system.
- Watering:** Cerasus germplasm requires regular watering, especially during the growing season. The soil should be kept evenly moist, but not waterlogged.
- Fertilization:** Cerasus germplasm requires regular fertilization, particularly in the spring before new growth begins. Use a balanced fertilizer, such as a 10-10-10 or 12-12-12, and follow the manufacturer's instructions for application rates.
- Pruning:** Cerasus germplasm requires pruning to maintain its shape and promote fruit production. Prune in late winter or early spring before new growth begins.
- Disease and Pest Control:** Cerasus germplasm is susceptible to several diseases and pests, such as cherry leaf spot, powdery mildew, and cherry fruit fly. Use appropriate fungicides and insecticides as needed.
- Harvesting:** Cerasus germplasm fruits are usually ready for harvest in late spring or early summer. The fruits should be picked when they are fully ripe but still firm.



• Conclusions

- Cerasus germplasm is generally well adapted to a wide range of climates, but its growth and fruiting are affected by temperature and moisture conditions. In general, sour cherry trees prefer a temperate climate with cool winters and mild summers.
- The ideal temperature range for Cerasus germplasm is between 15°C to 20°C during the growing season. The tree can tolerate temperatures as low as -40°C during the winter dormancy period but can be damaged by late spring frost or very high summer temperatures.
- Moisture is also an important factor for Cerasus germplasm growth and fruit production. The tree requires adequate moisture during the growing season but is susceptible to root rot in waterlogged soils. Sour cherry trees prefer well-drained soils that retain moisture without becoming waterlogged.
- In summary, Cerasus germplasm is well adapted to a wide range of climates, but it prefers a temperate climate with cool winters and mild summers. The tree can tolerate low temperatures during the winter dormancy period but is susceptible to late spring frost and very high summer temperatures. The tree requires adequate moisture during the growing season but is susceptible to root rot in waterlogged soils.



Figure 7. Fruits of sweet, dark and sour cherry.

