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Short Note

Characteristics of black currant (*Ribes nigrum* L.) -A new fruit introduced in Ladakh region of India

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Abstract

Investigation were carried out during 2006-07 on plant foliage and fruit characters of un named cultivar of black currant introduced from Sweden during 1998 at Leh (Ladakh). Due to improper management by the farmer, plants gave sample fruit very late during 2005. The average yield was 2.9 kg/plant. Average fruit weight, fruit length, fruit diameter, fruit volume, pulp percentage, number of seeds per fruit, TSS, acidity and total sugar were 800 mg, 11.32 mm, 10.99mm, 777µl, 59.07%, 23, 15.1^{0}B, 0.73% and 7.38% respectively. Based on preliminary observation it can be concluded that it can be a new potential fruit for cold arid region of India where choice of growing different fruits is very limited and can be an alternative of seabuckthorn for beverages.

Keywords: Black currant, *Ribes nigrum*, plant and fruit characters.

The black currant (*Ribes nigrum* L.), a native of Europe and Northern and Central Asia is important member of family Saxifragaceae and is rich source of vitamins and minerals. Black currant fruit contains water, protein, fat, carbohydrate, vitamin C, Riboflavin, calcium, phosphorus, iron and potassium. Due to strong flavour, except of few cultivars, black currants are not used as desert fruit. Most of the black currants are used for making juice and other processed products like jam, jellies, canning, yoghourt, liquor and for pie filling. There are also some cultivars, which are suitable for industrial syrup production. There is very less knowhow regarding this fruit in India, so there is a strong need of standardization of propagation, training and pruning, fertilizer requirements and preparation of different products for scientific orcharding of this unknown cultivar of black currant. As recently, seabuckthorn has attracted the attention of scientists and farmers of cold arid region especially Ladakh region due to its medicinal and processing use. The black currant can also be another new alternate fruit for cold region where the choice of growing different fruits is very limited. Keeping in view the importance of black currant, the plant foliage and fruit characters were studied so that it can be vegetatively propagated in future for scientific orcharding in farmers' fields.

Present investigations were carried at Leh district of Ladakh region during 2006-2007. The introduced plants of black currant were growing at an altitude of 11633 feet above mean sea level. The latitude and longitude of growing place is 34^0 10.179' N and 77^0 34.738' E, respectively. A few plants (unknown cultivar) of black currant were brought during 1998. Due to less awareness regarding the fruit, the plants were kept in polyhouse, their growth was hampered and fruiting started very late (in 2005) when they were brought out of polyhouse. During 2006, two plants fruited and all physico chemical analysis were carried out on the fruits obtained from these plants. The chemical composition of the fruits was estimated as per method detailed in AOAC (1960). A sample size of 100 fruits were taken for measurements.

The average data of 2006 and 2007 regarding plant, foliage and physico chemical fruit characters are presented in Table 1. The plant vigour was semi-spreading to spreading. The approximate date of sprouting is last week of April to 1st week of may, date of raceme emergence is 2nd - 3rd week of may and date of fruit setting is 3rd - 4th week of may. The average temperature during April, May, June, July and August was 0.73-11.97^{0}C, 7.53-25.15^{0}C, 9.47-20.92^{0}C, 15.12-27.95^{0}C and 13.20-14.11^{0}C, respectively. The fruit yield varied from 2.6 to 3.2 kg/plant with mean fruit weight 2.9 kg/plant. Plant spread, plant

height, number of branches, number of bunches per branch, number of fruits per bunch and length of fruiting bunch varied from 1.25 to 1.5m EW and 1.20 to 1.30 m NS, 118 to 126 cm, 16 to 20, 5 to 7, 4 to 10 and 38.76 mm to 62 mm, respectively with their respective mean values of 1.38 EW and 1.25NS, 122 cm, 18, 6, 7 and 52.30 mm.

Table 1. Average plant, foliage and physico-chemicals fruit characters of black currant growing in Ladakh region of India

Characters	Range	Mean
Yield (kg)	2.6-3.2	2.9
Plant Spread (m)		
EW	1.25-1.51	1.38
NS	1.20-1.30	1.25
Plant height (cm)	118-126	122
No. of branches/plant	16-20	18
No. of fruit bunches/branch	5-7	6
No. of fruits/bunch	4-10	7
Length of fruit bunch (mm)	38.76-62.00	52.30
Leaf area (cm^2)	38.58-50.43	44.51
Leaf length (mm)	84.20-90.32	87.26
Leaf breadth (mm)	80.30-90.21	85.26
Petiole length (mm)	33.20-55.10	39.63
Fruit weight (mg)	498-1100	800
Fruit volume (µl)	470-1000	777
Fruit length (mm)	9.43-13.82	11.32
Fruit diameter (mm)	8.62-12.24	10.99
Pulp weight (mg)	250-700	472
Pulp percentage	50.20-63.64	59.07
TSS (°B)	13.1-16.2	15.1
Acidity (%)	0.71-0.75	0.73
Total sugar %	7.33-7.51	7.38
Seed length (mm)	2.06-2.54	2.25
Seed width (mm)	0.89-1.66	1.11
Seed thickness (mm)	0.48-0.85	0.64
No. of seeds per fruit	8-48	23

The leaf area, leaf length, leaf breadth and petiole length ranged between 38.58 to 50.43 cm^2, 84.20 to 90.32 mm, 80.30 to 90.21mm and 33.20 to 55.10 mm, respectively with their respective mean value as 44.51 cm^2, 87.26 mm, 85.26 mm and 39.63 mm.

Fruit weight, length, diameter, fruit volume, pulp weight, pulp percentage and number of seeds extremed between 498 mg to 1.1g, 9.43 to 13.82 mm, 8.62 to 12.24 mm, 470µl to 1.0cc, 250 to 700 mg and 50.20 to 63.64 % and 8 to 48, respectively with their respective mean value as 800 mg, 11.32 mm, 10.99 mm, 777 µl, 472.56mg, 59.07 per cent and 23. Similarly TSS, acidity and total sugar ranged between 13.1 to 16.2°B, 0.71 to 0.75 per cent and 7.33 to 7.51 %, respectively. The mean value of these characters was 15.1°B, 0.73% and 7.38%. The number of seeds/fruits, seed length, width and thickness varied between 8-48, 2.06-2.54mm, 0.89-1.66mm and 0.48-0.85m respectively with their respective mean value as 23, 2.25mm, 1.11mm and 0.64mm. Beside this some of the products like black currant jam, squash, RTS and nectar were also standardized which can help in future for their use in beverages. Present results are in confirmation with the other workers working in different countries on black currant. The black currant contains 84.2% water, 1.7g protein, 0.1g fat, 13.1g carbohydrate, 200mg vitamin C, 0.05mg riboflavin, 60mg calcium, 40mg phosphorus, 40mg iron, 372 mg potassium per 100g of edible portion (Sharma and Bist, 1991). They also mentioned 8.40 kg yield/bush, 20-22 fruits/raceme, 480 to 520 fruits/shoot in cv. Titania and high sugar (8.39-8.86%), acid (3.97%) and ascorbic acid (137.8-165mg/100g). Numbers of black currant cultivars have been described with respect to tree, foliage fertility, fruiting and chemical composition in the register of new fruits and nut varieties by Hummer (1999). The present studies are in confirmation to these results. Slight deviation in the value may be due to less knowhow about the plant, management and introduced plants may not be of a commercial cultivar. These black currant will now be vegetatively propagated for scientific orcharding in government and farmers' fields so that it can emerge as new potential fruit for cold arid region of India and can serve as alternative for seabuckthorn which is used commercially for processing but people harvesting problem due to thorny nature of seabuckthorn.

References

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