

Research Note

'Beibinghong': A new grape cultivar for brewing ice red wine

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Key words: *Vitis amurensis* Rupr., ice wine, cultivar.

Introduction: The winters of northeast China are very cold. The existing cultivars of grape (*Vitis vinifera* L.) like 'Cabernet Sauvignon', 'Cabernet Franc', 'Riesling' and 'Chardonnay' etc. cannot mature and cannot survive through the winter because of the insufficient accumulated temperature and short frost-free period. *Vitis amurensis* Rupr. is a wild grapevine species originating from East Asia and is mainly distributed in Korea, Japan, and China. As one of the most cold-tolerant grapes, its stem can endure -40 to -50 °C. It also exhibits resistance to grape white rot and grape anthracnose which can severely damage *Vitis vinifera* grown worldwide. The *Vitis amurensis* grape berries have the characteristics of "four highs and three lows", namely: high acidity, high tannin and polyphenols, high dry extract and high nutrition; low sugar, low juice yield, and low fermentation temperature. In view of these current situation, a new grape cultivar 'Beibinghong' was selected through multi-generation hybrids between species (*Vitis amurensis* and *Vitis vinifera*). The cultivar, released in 2008, overcomes the characteristic of *Vitis amurensis* being used only for brewing sweet red wine. The cultivar is suitable for brewing red and ice red wine.

Material and Methods: The grape breeding program is based at the Institute of Special Animal and Plant Science in Zuoqia (44°04'N/126°05'E), where the frostless period is 114 to 124 d, the annual mean temperature is 3.6 and the extreme winter temperatures range from -39.8 to -43.2. 'Beibinghong' is the offspring of hybridization between 'Zuoyouhong' and '84-26-53' in spring of 1995 (Figure). The progeny of 'Zuoshan No.2' and 'Muscat Rouge de Frontignan' was hybridized with the progeny of '73134' and 'Shuangqing' to obtain 'Zuoyouhong' (SONG *et al.* 2005), an cultivar with muscat flavor released in 2005 by our institute, which is the seed parent, and the pollen parent is super strain '84-26-53' with low acid, high sugar and big fruit cluster. The original plant was preliminarily selected because of strong disease resistance, high yield and muscat flavor in 1998 and tested as '95-2-482'. The region test showed that this cultivar was highly cold and disease resistant. Wines made from the grapes have a deep ruby red color, pleasant honey and almond aroma. The ice wine made from 'Beibinghong' won a silver medal in "Ceremony of 2011 Vinalies China".



Item	New entry
Prinename	Beibinghong
Synonym	
Berry colour	Black
Sex of flowers	Hermaphrodite
Formation of seeds	Complete
Utilization	Wine grape
Breeder	Song Rungang
Breeding Institute	Institute of Special Animal and Plant Science, Chinese Academy of Agricultural Sciences
Breeder institute code	CHN220
Parent 1	Zuoyouhong
<i>Vitis</i> species	Interspecific crossing
Parent 2	84-63-53
<i>Vitis</i> species	Interspecific crossing
Year of cross	1995
Year of selection	2008
Year of protection	
Year of registration in the national variety list	

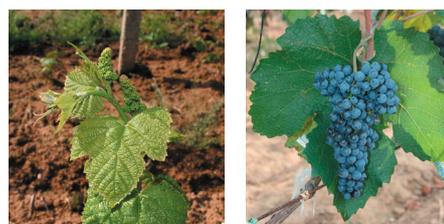


Figure: Pedigree of 'Beibinghong' grape.

Results and Discussion: The half lethal temperature of 'Beibinghong' is -29.07 °C. No freezing injury happens in KaLaQinQi of Inner Mongolia, Benxi of Liaoning and Jian Yulin of Jilin without artificial burying. The cluster is conical-shaped and sometimes shouldered, has an average weight of 215.2 g. The round blue-black berry has an average weight of 1.56 g, contains 2-4 seeds and thick berry bloom. The flesh is green and has no meat capsule. The average soluble solid content of 'Beibinghong' is 17.6 %, with a maximum of 25.8 % when it ripens in late September. The plantings were spaced 2.5 × 1.0 meters and trained in vertical system. The yield of adult plants was 20,000-25,000 kg·ha⁻¹. The yield decreased 52 % when frozen fruit were harvested in early December. The cultivar greatly promoted the development of the grape industry in cold areas.

Passort data on this cultivar can be found under "Variety number vivc23076" in the *Vitis* international Variety Catalogue (<http://www.vivc.de>). This research was financially supported by Research Fund of Jilin Province of China (20130206068NY) & (20050212).

SONG, R. G.; LU, W. P.; GUO, T. J.; LIU, J. K.; SHEN, Y. J.; LIN, X. G.; LI, X. H.; 2005: A new dry-red brewing grape variety 'Zuoyouhong'. *Acta Hort. Sin.* **32**, 757 (in Chinese).

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