

杨梅新品种早炭的选育

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摘要:早炭是由荸荠种实生变异单株选育而成的早熟杨梅新品种。果实近圆球形, 果型中等, 果蒂略凸起, 果面紫红色, 肉柱圆润, 果肉质地略硬, 风味浓, 味甜微酸, 核小; 浙江区域内平均单果质量 13.7 g。果实平均可溶性固形物含量 (w, 后同) 11.9%, 总酸含量 0.99%, 可食率 96%, 果形指数 0.98, 品质上等。果实生育期 45~50 d, 在浙江温州地区果实 5 月底至 6 月初成熟; 以春梢和夏梢为主要结果母枝, 花序坐果率 23.6%。品种抗病性强, 抗枯枝病、抗果实白腐病强于荸荠种。适合浙江省及全国杨梅适栽地区栽培, 第 3 年开花结果, 8~10 a(年) 进入盛产期, 每 666.7 m² 产量为 600~700 kg。

关键词: 杨梅; 新品种; 早炭

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A new Chinese bayberry cultivar Zaotan

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Abstract: Zaotan is an early-ripening bayberry with excellent appearance. The seeding was derived from a mutant of Biqizhong in a bayberry orchard. The plant with early maturity, large leaves and good quality was observed in a bayberry orchard from 1995 to 2001, and the second and third generations were grafted in 2003 and 2008, respectively. After more than 20 years of observation and identification on the mother tree and offspring, it is believed that the characteristics of the variety are stable and consistent. This tree is dwarf, vigorous, round or semicircular in shape, and the trunk and branches are short. The leaves are lanceolate-inverted, dark green, 0.16 cm long and 3.1 cm wide, and have short petiole. The flower is pure pistil, the female flower inflorescence is cylindrical, 0.85 cm long and 0.23 cm thick, and the flower is "V"-shaped. Fruit is nearly round, medium in shape, slightly protrude at the pedicel, and has purplish red peel, round column, slightly hard in texture, sweet and sour taste and small core. The average weight per fruit in Zhejiang region is 13.7 g. The average soluble solid content of the fruit is 11.9%, the total acid is 0.99%, the edible rate is 96%, and the fruit shape index is 0.98. Fruit quality is excellent. The fruit development period lasts from 45 d to 50 d and it matures from late May to early June in Wenzhou area. The main fruiting branches are spring shoots and summer shoots. The fruit-setting rate per inflorescence is 23.6%, and the physiological fruit dropping (June drop) is light. It is resistant to dead branch disease and fruit white rot, and less fruit drop occurs before harvest. Suitable cultivation area is in Zhejiang province and other suitable regions, this variety can bear fruits in the third year after planting and has high yield potential. Bayberry orchards should be established on red and yellow sandy loam with deep soil, sufficient moisture and a pH between 4.5-6.5; spacing in the rows and spacing between rows are 5 m×6 m or 4 m×4 m. The modified open center system is adopted to cultivate without pruning within 1-2 years after planting, and the pruning including pulling, pressing, hanging and supporting is applied to reduce the top upright branches within 3-4 years after planting in production. The yield is approximately 600-700 kg per 666.7 m².

Key words: Chinese bayberry; New cultivar; Zaotan

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杨梅是我国南方重要的特色水果,在农业结构调整和农民增收中发挥了积极作用^[1]。随着杨梅种植面积的扩大,果实成熟期较为集中、果品不耐贮运等问题日益突显,因此早熟、优质的杨梅新品种成为选育方向^[2]。浙江省亚热带作物研究所从20世纪90年代开展杨梅新品种选育工作,1995年在瑞安马屿

镇荸荠种杨梅果园发现1株成熟期早、叶片较大、品质优良的变异株,经过多代、多点的生长习性、适应性、品质性状观察,表现稳定、一致,并从分子水平上证实早炭没有与其他品种存在同物异名现象。2020年12月通过浙江省林木品种审定委员会审定(浙R-SV-MR-008-2020)(图1)。



左图(上)为早炭果实,左图(下)为荸荠种果实,右图为早炭结果状。

The left picture (top) shows the fruit of ZaoTan bayberry, and the left picture (bottom) shows the fruit of Biqizhong bayberry, the picture on the right shows the fruiting of ZaoTan bayberry.

图1 杨梅新品种早炭

Fig. 1 A new bayberry cultivar ZaoTan

1 选育过程

早炭杨梅是在瑞安市马屿镇潘山村荸荠种杨梅果园中发现的果实成熟期早的杨梅实生变异株。于1995年对该变异母株进行连续6 a(年)的观察,发现其优良性状稳定,并于2003年、2008年嫁接繁殖第二代、第三代。经过20多年对母树和子代的观察和鉴定,品种性状稳定、一致。早炭各试验种植区长势良好,树形易于管理,叶片明显大于对照、抗病虫害较强,3~4 a树龄开始结果,早熟、果大、采前落果

少。适合当地及其他杨梅种植区域栽培。

2 主要性状

2.1 果实主要经济性状

早炭果实成熟早、着色好、果色紫红色,果实近圆球形,果型中大、缝合线浅,果蒂略凸起,果梗中等长度,肉柱圆润,果肉质略硬,风味浓,汁多,味甜酸,风味佳,核小,果实耐贮存。浙江区域内平均单果质量13.7 g,可溶性固形物含量(w,后同)11.9%,总酸含量0.99%,可食率96%,果形指数0.98(表1)。

表1 早炭与荸荠种品种果实性状比较

Table 1 Comparison of fruit attributes between ZaoTan and Biqizhong

品种 Cultivar	成熟期 Mature period	果形 Fruit shape	平均单果质量 Mean fruit mass/g	w(可溶性固形物) Solubule solids content/%	w(总酸) Total acid content/%	可食率 Edible rate/%	风味 Flavor
早炭 ZaoTan	5月下旬至6月上旬 Late May to early June	圆球形 Round sphere	13.7	11.9	0.99	96.0	味甜、微酸 Sweet with slight sour
荸荠种 Biqizhong	6月上中旬 Early, Mid June	圆形 Round	9.6	11.4	0.80	95.6	酸甜 Sour with slight sweet

2.2 植物学特征

树冠较矮,长势健壮,圆头形或半圆形,树干、枝条短缩,以短果枝结果为主,叶片倒披针状,较大,长10.16 cm、宽3.1 cm;叶柄较短,叶片浓绿色,花性纯雌蕊,雌花花序圆筒状,长0.85 cm、粗0.23 cm,花朵

的形状为“V”字形。

2.3 生物学特性

早炭花芽的萌动期在2月下旬,初花期在3月初,盛花期在3月上旬,终花期在3月中旬。一年抽梢3次,包括春梢、夏梢和秋梢。春梢抽生期4月中

旬,夏梢抽生期6月下旬,果实始熟期5月底至6月初,果实发育期45~50 d。抗枯枝病、抗果实白腐病强于荸荠种。

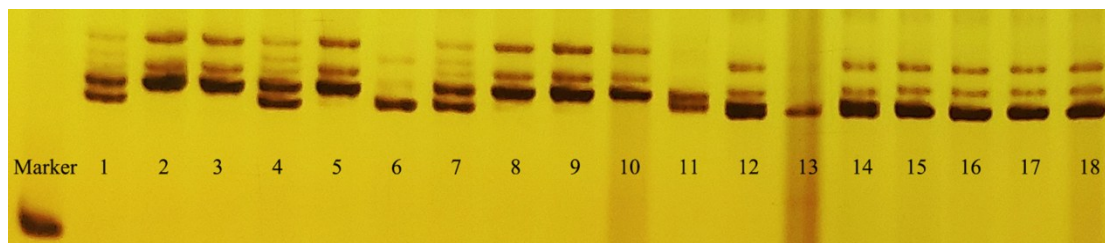
2.4 生长结果习性

以春梢和夏梢为主要结果枝,花序坐果率为23.6%,生理落果较轻。一般8~10 a进入盛产期,且

丰产稳产,每666.7 m²产量为600~700 kg。

2.5 分子鉴定

采用SSR分子标记扩增技术,对2019年采集的18份杨梅样品进行分子鉴定(图2)。引物MrEST-SSR42可将早炭与其他样品区分开,从分子水平证实早炭没有与其他品种存在同物异名现象。



1. 黄狗盆;2. 土大 2(山根);3. 丁岙(山根);4. 早梅(山根);5. 丁岙早熟;6. 大白;7. 小白;8. 早熟(贾宅);9. 土大(贾宅);10. 丁岙;11. 早炭;12. 荸荠种 1;13. 早佳;14. 荸荠种;15. 东魁;16. 水晶种;17. 深红种;18. 晚稻。

1. Huanggoupen; 2. Tuda 2 (Shangen); 3. Dingao (Shangen); 4. Zaomei (Shangen); 5. Ding' aozaoshu; 6. Dabai; 7. Xiaobai; 8. Zaoshu (Jiazhai); 9. Tuda (Jiazhai); 10. Dingao; 11. Zaoitan; 12. Biqizhong 1; 13. Zaojia; 14. Biqizhong; 15. Dongkui; 16. Shuijingzhong; 17. Shenhongzhong; 18. Wandao.

图2 引物 MrEST-SSR42 的扩增情况

Fig. 2 Amplified results of the primer MrEST-SSR42

3 栽培技术要点

3.1 适栽区域

适宜在浙江省及全国杨梅适栽地区栽培,建议选择土质深厚、水分较足、pH 4.5~6.5的砂砾性红黄壤土建园种植。

3.2 种植技术

春植以2月下旬至3月下旬为主。株行距5 m×6 m,每666.7 m²宜栽22株;该品种长势中庸,矮化栽培可采用株行距4 m×4 m,每666.7 m²可栽42株,定植穴0.8 m×0.8 m×0.6 m。对果园雄株配置模式没有特殊需求,与荸荠种相同。

3.3 整形修剪

该品种以春梢和夏梢为主要结果母枝,生产上采用改良开心形整形,即在栽植后的1~2 a内以培养树冠为主,一般不作任何修剪;3~4 a,采用拉枝、压枝、吊枝、撑枝等方式减弱直立枝的顶端优势,让内膛充分通风透光,促进春、夏梢的短果枝花芽分化。对部分结果后的枝条进行短截更新,对徒长枝进行摘心,抑制长势,剪去细弱枝、过密枝、交叉枝、重叠枝以及病虫害枯枝^[3]。

3.4 肥料管理

幼龄树以促为主,采取逐年扩穴深施的方法,注重速效性肥料施用,与早佳品种的施肥管理相似^[3]。成年树以促进结果、提高产量和品质为主,以撒施、

条施和加土覆盖为主。施肥应遵循增施有机肥和钾肥、控制氮肥、减少磷肥、重视中微量的原则。

3.5 花果管理

结合夏季疏删内膛直立性大枝,于次年春季花果期采用“疏枝、疏花、疏果”的方法,对花量过多的杨梅树直接疏除外围直立性花枝,花量适中的杨梅树宜疏除直立性果枝,花量少的杨梅树则在开花前或开花后采用喷施硼、磷、钾混合液的方法保花保果。

3.6 病虫害防治

该品种抗病、抗逆性强,其抗枯枝病、抗果实白腐病等强于荸荠种,采前落果少,挂果期无需喷施农药,只需加强常规性栽培管理,保持树冠合理的通风透光,重视冬季清园,增强树势。

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