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早熟砂梨新品种‘新玉’的选育

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摘 要：‘新玉’是由‘长二十世纪’×‘翠冠’杂交选育的早熟鲜食砂梨新品种。该品种树势中庸偏强，树姿半开张，花芽易形成。果实扁圆或圆形，果皮黄褐色，果肉白色。肉质细脆，汁液多，风味甜，无香气。平均单果质量305 g，大果质量可达700 g，果形指数0.85，较端正。每果实含种子8~10粒。平均可溶性固形物含量12.1%，品质上。果实发育时间110 d左右，在杭州地区（经度120.408 8，纬度30.427 2）7月中旬成熟，成熟期介于‘翠玉’和‘翠冠’之间。每个花序5~8朵花，多者12~13朵，萌芽率高，成枝力中等，枝条质地坚硬且脆，在拉枝时易折断。当年生新梢容易形成腋花芽。适合浙江及周边省区的砂梨产区栽培，第3年开花结果，丰产、稳产。可用‘玉冠’‘翠玉’‘黄花’‘红酥脆’等作为授粉品种。2018年获得植物新品种授权。

关键词：砂梨；新品种；‘新玉’；早熟

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Breeding report of a new early maturing sand pear cultivar ‘Xinyu’

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Abstract: ‘Xinyu’ is a newly released early maturing fresh sand pear (*Pyrus pyrifolia* L.) cultivar, which was selected from a across between ‘Osa Nijisseiki’ and ‘Cuiguan’ in 2005 at *Institute of Horticulture, Zhejiang Academy of Agriculture Sciences*. A total of 100 seedlings were obtained, 90 of which were planted in the pear breeding base of Liangzhu town (Yuhang district, Hangzhou city, Zhejiang province, China), and the remaining 10 plants, numbered as D1-D10, were planted in the pear breeding base of Hangzhou. Among them, ‘D2’ was first selected in 2010 as its fruit show early maturity, attractive uniform fruit sharp and lighten-brown skin color, and excellent eating quality. After regional adaptability tests at three site (Haining, Fuyang and Cixi) for 4 years from 2012 to 2015, it was selected and named as ‘Xinyu’ in 2016. The tree of ‘Xinyu’ is moderately vigorous and semi-spreading, with highly germinating and branch development capability. The branches are hard and brittle, easily broken when bending. It’s easy to form lateral flower buds on new shoots. Each inflorescence has an average of 5 to 8 flowers, up to 12 to 13. The color of alabastrum and petals are all white, same as its female parent ‘Osa Nijisseiki’, but the alabastrum color is different from its male parent ‘Cuiguan’, which is dark-red. The color of young leaf is yellowish-green, but its parents’ are all dark-red. About 80% of the flowers with 5 to 6 petals, while the left 20% are pleiopetalous flowers, have 10-14 petals. The fruit is round and uniform, fruit index 0.85. has yellowish-brown skin color. The flesh is white, fine, crispy, and juicy. The average fruit weight is 305 g, maximum fruit weight can reach 700 g. The fruit quality is excellent, which showed average soluble solid content is 12.1%. The average full bloom date for ‘Xinyu’ was March 26th, which was very similar to ‘Cuiguan’ and 1 or 2 days earlier than ‘Cuiyu’ in 2016-2018, the optimum fruit ripening time is July 15-18th in middle July in Hangzhou Area (Lat. 120.408 8,

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Long. 30.427 2), around 3 days later than ‘Cuiyu’ and 3-5 days earlier than ‘Cuiguan’. The fruit development period is around 110 d, suitable for cultivation in sand pear producing areas of Zhejiang and surrounding provinces, it will bear fruit in the third year after planting, yield is high and stable. ‘Yuiguan’ ‘Cuiyu’ ‘Huanghua’ ‘Hongsucui’ can be used as the pollination cultivars. The China Plant Variety Protection application for ‘Xinyu’ was submitted in October, 2015 (Grant No. 20151364.7), and gained authorization since January, 2018 (Grant No. CNA20151364.7).

Key words: *Pyrus pyrifolia*; New cultivar; ‘Xinyu’; Early maturing

中国果树栽培面积和产量均列世界首位，果树产业已成为我国农村经济社会发展及农民脱贫致富的重要产业[1]，果树育种工作者在其中做出了重要贡献。据报导，自改革开放以来我国苹果、柑橘等11种果树共选育了1 968个品种（系）[2]，有力保障了产业的长期稳定、快速发展。

当前我国梨产业存在中晚熟品种占比过大、优质早熟品种相对缺乏的问题[3]。发展早熟梨在我国南方具有明显区域优势，而选育适应我国生态条件的优良早熟梨品种是发挥优势、提升产业发展的关键[3-4]。据统计，新中国成立至今，我国共发布了320余个梨新品种，其中成熟期在7月底之前的早熟梨品种有51个[5]，有些已成为我国早熟梨主栽品种，如中国农业科学院郑州果树研究所选育的‘中梨1号’[6]、浙江省农业科学院园艺研究所选育的‘翠冠’和‘翠玉’[7-8]等。随着早熟梨市场竞争加剧，以及消费行为及方式的多元化，生产者及消费者都需要多元化的选择。‘新玉’是浙江省农业科学院园艺研究所通过杂交育种方法新育成的早熟、褐皮、大果型、优质砂梨新品种，并于2018年获得国家植物新品种权保护。

1　选育经过

选择日本品种‘长二十世纪’为母本，浙江省农业科学院园艺研究所育成的早熟品种‘翠冠’为父本，于2005年4月在杭州进行人工有性杂交。2006年培养杂交苗，该杂交组合共获杂交实生苗100株，其中90株定植于杭州市余杭区良渚镇的梨育种基地内，其余10株定植于浙江省农业科学院杭州科研示范基地梨育种圃内（圃内代号：D1~D10）。2010年代号D2的单株开始结果，表现出成熟期比‘翠冠’早、果形端正、果皮呈均匀一致的褐色、品质优等特点（图1），初选为优株，当年秋季即开始高接扩繁，2011年育苗，2012—2015年期间连续多点观察，该品系果实性状及栽培性状表现稳定，遂确定为终选优系，定名并于2015年10月申请农业部植物新品种权保护，2018年1月获植物新品种权证书（品种权号：CNA20151364.7）。品种系谱见图2。

图1　早熟砂梨新品种‘新玉’

Fig. 1　A new early maturing sand pear cultivar ‘Xinyu’

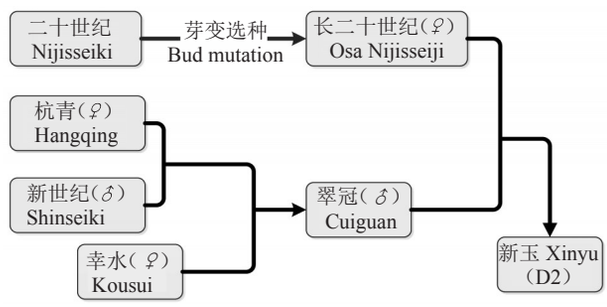

图2　‘新玉’系谱图

Fig. 2　Pedigree of ‘Xinyu’

2　主要性状

2.1　植物学特征

参照梨种质资源描述规范和数据标准[9]，该品种树势中庸偏强，树姿较直立，成龄树主干树皮光滑，1 a（年）生枝条形状直立，阳面主色为暗褐色，单位面积皮孔数量中，休眠叶芽顶端钝尖、斜生。当年生嫩枝及幼叶呈黄绿色，成熟叶平均长12.3 cm，宽7.5 cm，叶片呈卵圆形，平展不反卷，相对于枝条

呈斜向下着生，叶基部呈截形，叶尖呈急尖，叶缘具锐锯齿，叶柄基部无托叶。成熟花芽呈长椭圆形，每个花序平均5~8朵花，多者12~13朵。蕾期花瓣白色，花瓣全白，卵圆形，约80%的花具有5~6个花瓣，边缘相接或分离；约有20%的花为重瓣花，花瓣有10~14片，边缘重叠（图1-B）。柱头与花药等高，花柱基部无茸毛，花药紫红色，花粉量较多，花柱4~6枚，雄蕊30~37枚。

2.2 果实特征及经济性状

果实扁圆或圆形，果形指数0.85，端正。成熟果实整体呈亮黄褐色，底色不明显。果梗直立无肉质，萼片脱落，偶有宿存。果心较小，果肉白色，肉质松脆细嫩、味甜多汁、石细胞少。平均单果质量305 g，大果质量可达700 g，平均可溶性固形物含量12.1%（表1）。

2.3 生长结果习性

‘新玉’耐高温高湿，萌芽率高，成枝力较强，枝条质地硬脆。以短果枝结果为主，中长果枝具有结果能力。果台副梢一般每台1~2个，连续结果能力强。腋花芽形成容易，花量较大，坐果率高。低接树一般在定植第2年开始结果，5 a后逐渐进入盛产期，在2 m×4 m的密度下，平均666.7 m^2产量控制在1 750 kg左右有利于维持较高商品果率。采用多头高接换种方式的高接树第2年能恢复50%产量，第3年即可恢复80%以上产量。无采前落果和裂果现象，丰产稳产。

表1 ‘新玉’与主栽早熟品种果实主要经济性状比较

Table 1 Comparison of key fruit economic characters between ‘Xinyu’ and major early-maturing varieties

品种 Cultivar	果皮颜色 Fruit skin color	平均单果质量 Average fruit mass/g			*w*(可溶性固形物) Soluble solids content/%		
		2016	2017	2018	2016	2017	2018
新玉 Xinyu	黄褐色 Yellowish-brown	287.8±44.1	321.5±35.3	307.0±40.7	11.5±1.1	12.6±1.0	12.2±0.3
翠冠 Cuiguan	暗绿色，多锈斑 Dark-green, more russet	291.2±50.3	314.6±44.8	335.8±62.3	12.6±0.9	12.9±0.6	12.7±0.8
翠玉 Cuiyu	浅绿色，无锈斑 Light-green, no russet	302.4±63.2	313.4±58.6	348.2±55.5	10.9±0.6	11.4±0.4	11.2±0.5

2.4 主要物候期

杭州地区叶芽萌动期2月底至3月上旬，盛花期3月中下旬至3月底，花期与‘翠冠’一致，比‘翠玉’早1~2 d。果实成熟期介于‘翠玉’与‘翠冠’之间，在7月中旬。果实发育时间110 d左右（表2）。

表2 ‘新玉’与主栽早熟品种主要物候期比较

Table 2 Comparison of key fruit economic characters between ‘Xinyu’ and major early-maturing varieties

物候期 Phenological period	新玉 Xinyu			翠冠 Cuiguan			翠玉 Cuiyu		
	2016	2017	2018	2016	2017	2018	2016	2017	2018
盛花期 Date of full bloom	03-21	03-25	03-27	03-21	03-25	03-27	03-22	03-27	03-29
果实成熟采收期 Date of maturity	07-15	07-18	07-18	07-19	07-20	07-23	07-12	07-15	07-16
果实发育时间 Time of fruit development/d	114	113	111	118	115	116	110	108	107

3 栽培技术要点

3.1 计划密植

‘新玉’生长势中庸偏强，种植密度在平原地区推荐为株行距为2 m×4 m，每666.7 m^2种植81~85株；在丘陵地区可适当加密为2 m×3 m，每666.7 m^2种植110~115株。一般定植3 a后开始结果，5 a后封行进入盛果期。

3.2 合理配置授粉树

商业化栽培时推荐按照4~6∶1的比例配置授粉品种，可选择‘玉冠’‘翠玉’‘黄花’‘红酥脆’等，但与其父本‘翠冠’交配不亲和，不能互为授粉品种。花期遇连阴雨天气时应进行人工辅助授粉。

3.3 适时整形修剪

该品种枝条质地较硬，易脆折。定植当年，要在主枝停长前、未完全木质化时及时开张角度，冬季修剪时对需开张角度的枝条要提前做好保护措施，以避免折枝损失。

4 应用前景

‘新玉’果型大且端正、皮色均匀一致、品质优，采用透光套袋栽培后外观商品性更佳。该品种成熟期比南方当前早熟梨主栽品种‘翠冠’早 7 d 左右，且皮色均匀一致、果实综合品质性状优。在长江流域砂梨产区的传统褐皮梨消费市场，可部分替代晚熟褐皮品种，推荐进行适度规模种植。

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