

# Evaluation and Selecting of Chinese Chinquapin (*Castanea henryi*) Germplasm resources in China



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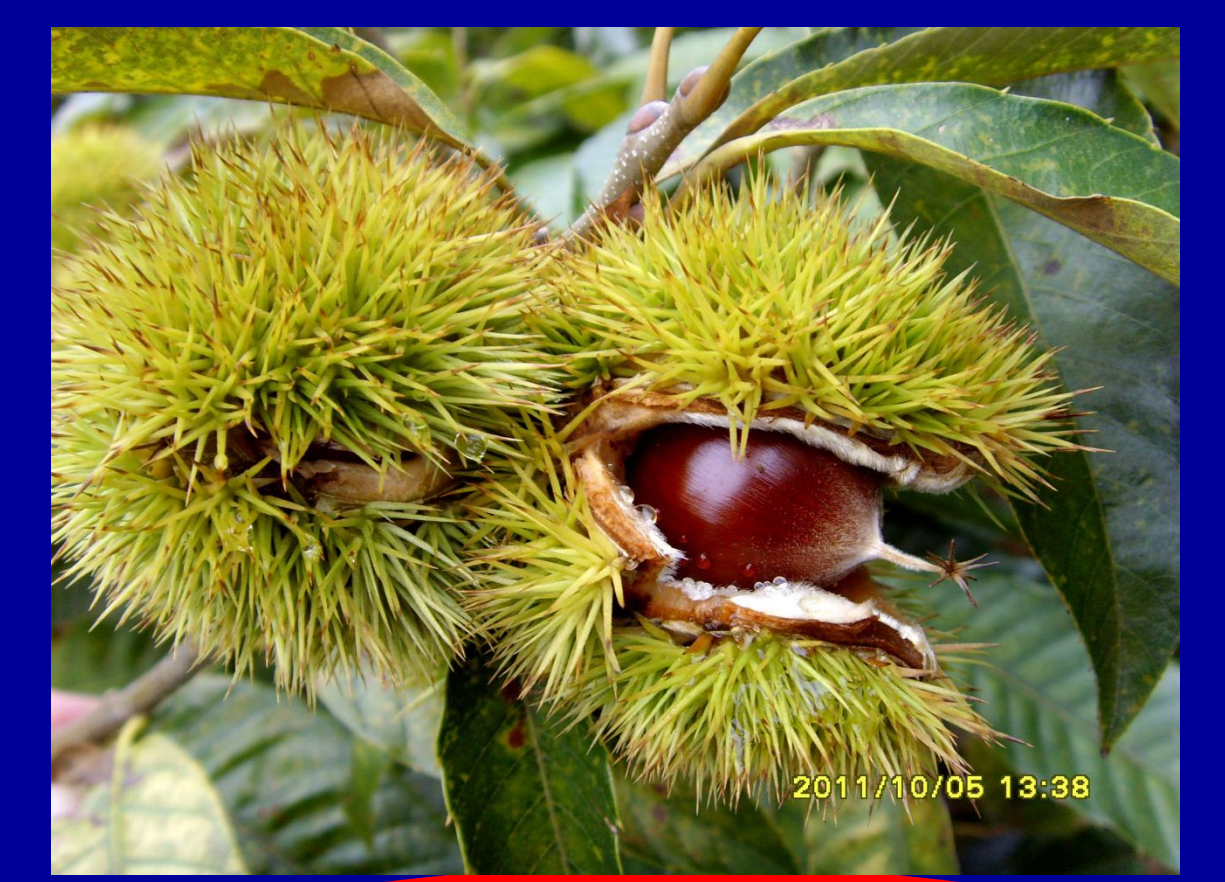
**Introduction:** Chinese chinquapin (*Castanea henryi* (Skam) Rehder & Wilson) is an important woody grain species in China. The nut is conical and contains a large proportion of starch (25.4% – 83.8%), protein (8.4% – 21.9%), and soluble sugar (6.2%–17.1%), with relatively low amount of fat (0.5%–5.4%). Numerous minerals and vitamins, together with appreciable amounts of fiber, are also present in the Chinese chinquapin nuts. Additionally, the nut is a rich source of amino acids, containing 18 types of amino acids, of which eight are essential to the human body.



Bearing branch



Flower



Fruit

**Abstract:** A total of 221 samples belonging to 17 wild *Castanea henryi* populations were amplified by 15 primer combinations. The amplification produced a total of 221 loci with the average number of polymorphic loci being 155.06 and the genetic diversity of 70.16%. The number of total genetic diversity index (Ht), population genetic diversity index (Hs), Nei's genetic diversity index and Shannon's information value is 0.3636, 0.2466, 0.2460 and 0.3677, respectively, revealing high genetic diversity among the wild *Castanea henryi* populations. Among the 17 populations, the HS population showed the highest polymorphism rate, 85.07%, followed by the JS population (83.26%), implying that the HS and JS populations harbored the richest genetic diversity in Hunan province. In addition, Xiangxi autonomous region of Hunan province is one of the distribution centers of *Castanea henryi*.

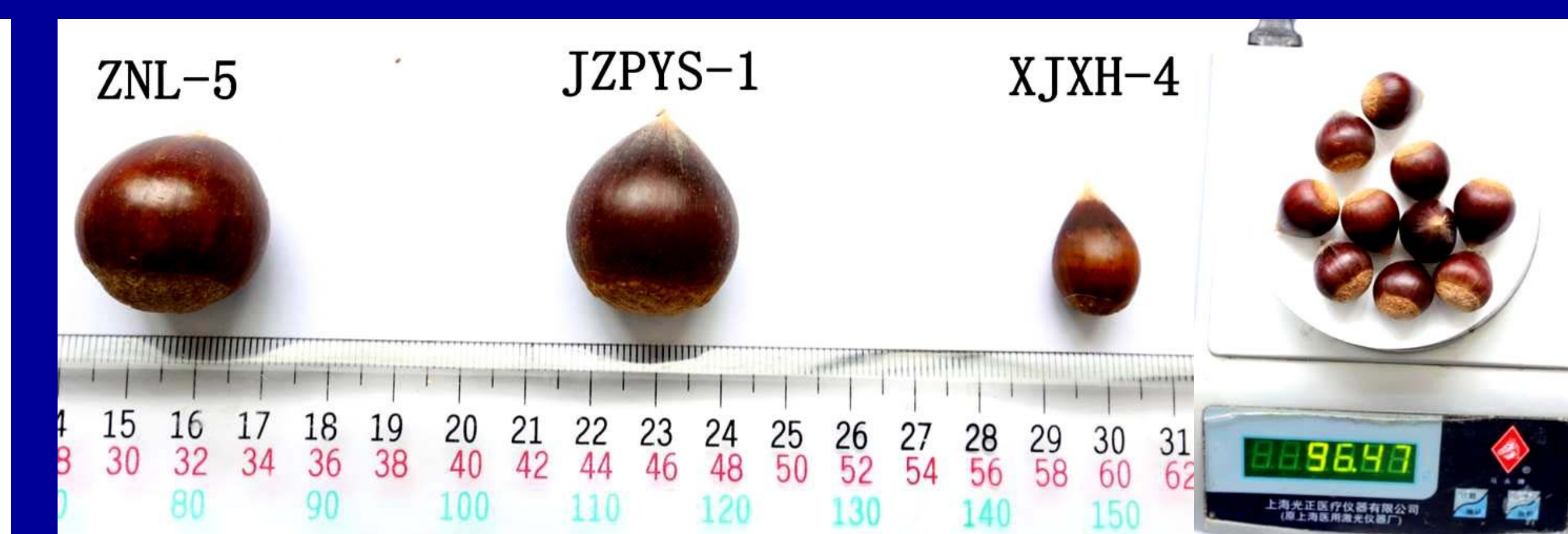
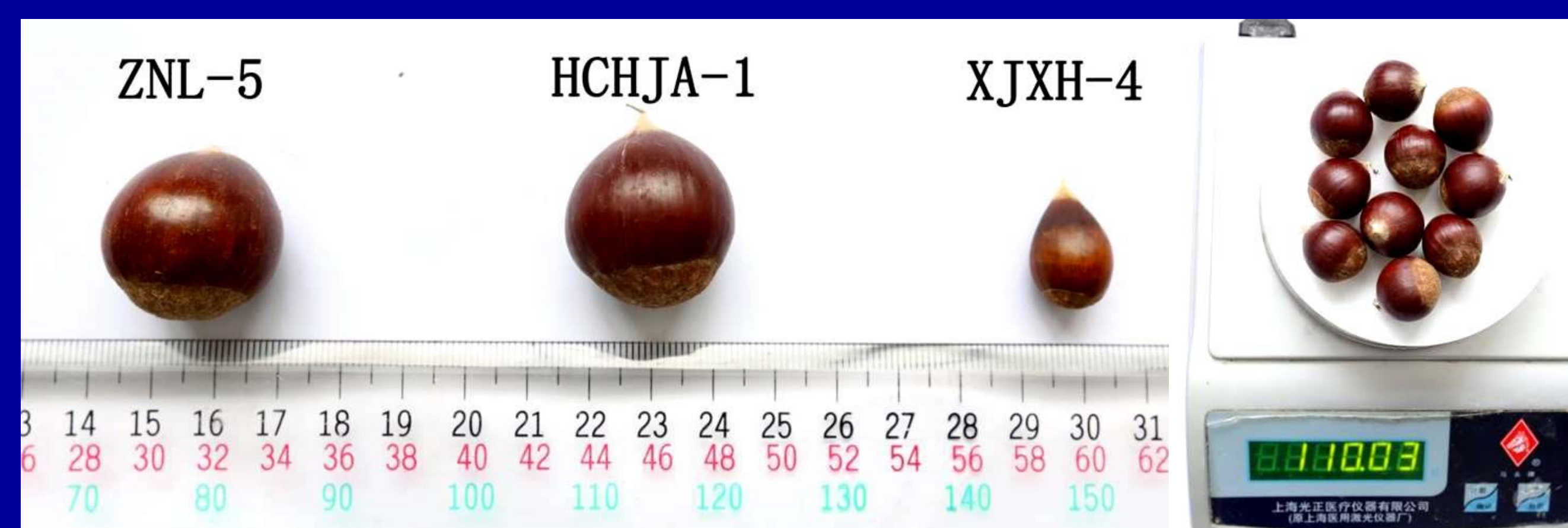
We systematically conducted the research of evaluation and domestication on 63 wild *Castanea henryi* germplasm resources, and finally screened four elite varieties, i.e. 'Huali 1', 'Huali 2', 'Huali 3', and 'Huali 4'. The four varieties have high and stable yield and high resistance, and could be planted in subtropical areas of China for starch production.



Investigation and collection of *Castanea henryi* germplasms



Evaluation and selecting of *Castanea henryi* germplasms



Selective  
Improved  
variety

