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BRS Tui: a new Biquinho-type pepper cultivar released by Embrapa

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ABSTRACT

The orange-fleshed Biquinho pepper type cultivar BRS Tui was developed by Embrapa Hortaliças to meet the demands of fresh fruit and processing agroindustry of preserves, jellies, flavored oils and vinegar markets. Its fruits are very aromatic, tasty, and crunchy. It is resistant to important diseases, and presents high yield, uniformity and fruit quality. Moreover, ‘BRS Tui’ fruits are sweet and serve consumers who do not consume hot peppers because of their pungency.

Keywords: *Capsicum chinense*, processing, diseases resistance, genetic breeding.

RESUMO

BRS Tui: nova cultivar de pimenta Biquinho da Embrapa

A cultivar de pimenta Biquinho BRS Tui, de coloração laranja clara, foi desenvolvida pela Embrapa Hortaliças visando tanto o mercado de frutos frescos como o de processamento de conservas, geleias, azeites e vinagres aromatizados. Seus frutos são muito aromáticos, saborosos, crocantes e doces, não apresentando picância. A cultivar é resistente às principais doenças que afetam a cultura da pimenta e apresenta elevadas produtividade, uniformidade e qualidade de frutos. Além disso, os frutos atendem aos consumidores que não consomem pimentas picantes.

Palavras-chave: *Capsicum chinense*, processamento, resistência a doenças, melhoramento genético.

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In the early 1980's, Embrapa Hortaliças launched a *Capsicum* breeding program, considered the largest public investment in pepper breeding in Brazil, targeting different pepper-types and species (Ribeiro *et al.*, 2015). One of the strategies adopted by the program has been to focus on the development of specific products demanded by the market, with about 80% of the total resources allocated to this segment; and the allocation of about 20% of breeding efforts to explore new opportunities and niches (Reifschneider *et al.*, 2013, 2016). Most recent efforts address the development of new, uniform, high yielding, high nutrition, disease resistant orange-fleshed Biquinho type pepper. The Biquinho (little beak) pepper group is highly appreciated by Brazilians because of its distinctive aroma and flavor like other *Capsicum chinense* pepper-types, but its fruit is sweet (Ribeiro & Reifschneider, 2008).

In Brazil, the Biquinho-type pepper

was apparently initially cultivated in the Triângulo Mineiro region (Carvalho & Bianchetti, 2008; Heinrich *et al.*, 2015), but nowadays it is cultivated in several Brazilian regions. A typical plant of the Biquinho group is a bush with about 0.5 to 0.7 m height, and intermediate or erect growth habit. Its pod is pointed, triangular-shaped and it is green when immature and red when ripe. The fruit size ranges from 2.0 to 2.8 cm long by 1.2 to 1.7 cm wide (Carvalho *et al.*, 2006; Heinrich *et al.*, 2015). Biquinho pepper fruits are sweet, with pungency ranging from 95 to 270 SHU (Scoville Heat Units) (Heinrich *et al.*, 2015).

PEDIGREE

‘BRS Tui’ was derived from a commercial red-fruit Biquinho pepper segregating for fruit color (CNP4162), part of the germplasm collection of *Capsicum* spp. at Embrapa Hortaliças.

Four generations of plant selection and selfing were performed until the progenies showed no segregation. During each generation, selection for horticultural and processing characteristics relevant to the industry was undertaken. Selection was based on plant and fruit traits such as plant height and architecture, fruit shape and size, mature fruit color (orange-fleshed), no pungency, high yield, and disease resistance. ‘BRS Tui’ has been registered (RNC 36495) and protected (DOU 26/12/2017) by the *Brazilian Ministry of Agriculture, Livestock and Food Supply* (MAPA). Breeders’ seed is being made available to interested parties in the private sector.

CHARACTERISTICS AND PERFORMANCE

‘BRS Tui’ plants present intermediate growth habit, approximately 0.7 m



Figure 1. Biquinho pepper plant, cultivar BRS Tui. Brasília, Embrapa Hortaliças, 2015. Foto: Francisco José B Reifschneider



Figure 2. Biquinho pepper fruits, cultivar BRS Tui are light green when immature and light orange when ripe. Brasília, Embrapa Hortaliças, 2015. Foto: Francisco José B Reifschneider

height and 1.0 m width (Figure 1). The hanging fruits are pointed, triangular shaped, with smooth surface, light green color when immature and orange-fleshed color when ripe (Figure 2), 1.8 cm long, 3.2 cm wide and 2.0 mm wall thickness. ‘BRS Tui’ fruits are extremely aromatic, tasty, and crunchy. In Central Brazil during the dry season, harvest begins around 90 days after seedlings are transplanted to the field.

‘BRS Tui’ presents field resistance to the tospoviruses Tomato Spotted Wilt Virus (TSWV) and Tomato Chlorotic

Spot Virus (TCSV), and to the potyviruses causing Pepper Yellow Mosaic Virus (PePYMV), and Potato Virus Y (PVY); resistance to *Meloidogyne incognita*; and intermediate resistance to *Oidiopsis sicula* and *Xanthomonas euvesicatoria* and *X. gardneri*.

‘BRS Tui’ demands high temperature for growing and is sensitive to low temperatures and intolerant to frost. In temperate regions, ‘BRS Tui’ should be grown in the warmer months. The new cultivar is recommended for open field, as well as protected (greenhouse/

screenhouse) cultivation. ‘BRS Tui’ yielded around 30 t ha⁻¹ (23,000 plants ha⁻¹) in field trials in Brasília-DF and three different sites in Goiás. The sweet and orange-fleshed fruits have negligible pungency of *circa* 170 SHU (Scoville Heat Unit) and high content of vitamin C (205 mg 100 g of fruit⁻¹).

‘BRS Tui’ was developed to meet both the fresh fruit market and the processing industries, particularly for production of pepper preserves, in addition to the potential use in many gourmet products such as sauces, jellies, flavored oils and vinegars, or even the ornamental pepper niche. The orange-fleshed fruit differentiates ‘BRS Tui’ from the other Biquinho pepper cultivars, with great potential to occupy new market niches.

SEED MAINTENANCE AND DISTRIBUTION

Embrapa Hortaliças will provide seeds of ‘BRS Tui’ under contract to interested seed-producing companies.

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