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Short Communication

Two unique black pepper accessions with very long spikes from the centre of origin

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Abstract

- 11 Two unique black pepper accessions with very long spikes were collected from the centre of
- origin of the species and characterized. The two accessions can be a valuable genetic source in 12
- the improvement of spike length. 13
- **Keywords:** characterization; germplasm; *Piper nigrum*; spike; variability 14

Introduction

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16 Black pepper (Piper nigrum L.) originated in the Western Ghats of South India. This region is endowed with many 17 landraces besides the progenitors of cultivated black 18 19 pepper. Landraces, natural mutants, improved varieties 20 2.1 pool of this tropical vine (Sasikumar et al., 1999, 2007; Ravindran et al., 2000). The Indian Institute of Spices 22 Research (Kozhikode, Kerala, India), the apex organi-23 zation for black pepper research, has been involved in 24 25 the mapping, collection, characterization and conserva-

Experimental

Recently, in a trait-specific survey, two unique black

pepper accessions with very long spikes, though with

tion of the diversity of black pepper from its centres of

domestication/origin in the country.

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Results and discussion

Spike length is an important yield-contributing trait in black pepper and thus amenable to selection (Pillai og et al., 1979; Sujatha and Namboodiri, 1995). As one of the characteristics of the black pepper ideotype, spike length has been described to have a good correlation with a number of berries per spike, indicating its importon ance in trait selection (Krishnamurthy et al., 2010). The variability (range and distribution) of spike length in black pepper is shown in Fig. S2 (available online). Spike length exceeding 26 cm is extremely rare in the

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a poor setting, were collected from Coottanadu Estate, Wayanadu, Kerala, bordering the evergreen forest of the Western Ghats (latitude: 11°34′42″N; longitude: 76°06′70″E; altitude: 800 m mean sea level; Fig. S1 (available online)) and characterized. Accession numbers 7547 and 7548 were assigned to the specimens and conserved and even true seedlings constitute the primary gene on the genebank of the Institute. The estate is predominantly a tea plantation where different cultivars (approximately 8000 vines of about 25 years old) are grown under different standards (shade trees).

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Table 1. Morphological and quality characteristics of the long-spiked accessions

Characteristics	Accession no. 7547	Accession no. 7548
Shoot tip colour Leaf length (cm) Leaf width (cm) Leaf petiole length (cm) Spike length (cm) Spike peduncle length (cm)	Purple 15.2 (medium) 5.6 (narrow) 1.5 (short) 27.9 (long) 1.15 (medium)	Light purple 12.3 (medium) 5.55 (narrow) 1.05 (short) 29.5 (long) 1.31 (medium)
No. of berries/spike Dry recovery (%) Piperine (%) Essential oil (%)	14.1 (less) 30 2.54 2.4	17.6 (less) - 3.4 2.7

primary gene pool of black pepper, except for the lone of accession reported recently by Saji *et al.*, (2013).

Black pepper is blessed with the advantages of viable sexual reproduction and excellent vegetative multiplication. Thus, any new variation that arises out of sexual reproduction, naturally or consciously, can be fixed by the asexual propagation method, accounting for new variability in a clonally propagated crop such as black pepper. Self-grown seedlings from seeds dispersed by birds or ripe seeds fallen from the vines are a normal process in black pepper, contributing to the evolution of the species. The unique long-spiked accessions, reported herein, might have been self-grown true seedlings consciously propagated by the planter or survived on their own. Self-grown seedlings have been reported

to be a source of diversity in the centre of origin of black pepper (Sasikumar et al., 2011).

The two unique accessions had the following characteristics: very long spikes with a loose setting; purple to light purple shoot tips; drooping/hanging lateral branches; ovate-lanceolate to ovate leaves with acuminate tips; medium-quality, round, small berries (Table 1 and Fig. 1). The fresh yield per vine was 2–3 kg. Even though the spikes were very long, hitherto unreported in the world gene pool of cultivated black pepper, the number of berries per spike was rather less. In black pepper, the number of berries usually ranges from approximately 30 to >100, depending upon the varieties or hybrids (Ravindran *et al.*, 2000).

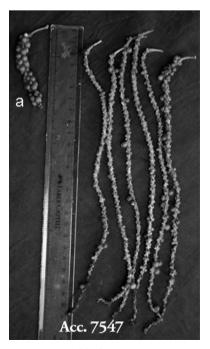
Although the loose setting of the accessions is a deterrent in the breeding programme, this trait can be modified by appropriate breeding methods or used as a donor in hybridization.

Supplementary material

To view supplementary material for this article, please visit http://dx.doi.org/10.1017/S147926211400080X

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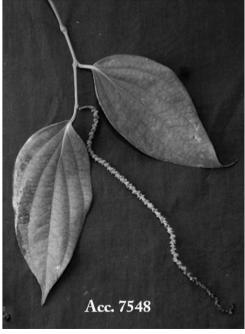


Fig. 1. (colour online) Two unique black pepper accessions with very long spikes. 'a' is the spike of the popular cultivar 'Karimunda'.

Q1 Black pepper with very long spikes

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