'AGALI BLACK PEPPER'- A UNIQUE ACCESSION WITH HIGH DRY RECOVERY AND AN IDEAL COMMODITY FOR GI REGISTRATION

B Sasikumar, K V Saji, K R Lijini, K Kandiannan D Prasath and M Anandaraj
Indian Institute of Spices Research, PO Marikunnu, Kozhikode-12, Kerala, India.
Email: bhaskaransasikumar@yahoo.com (B.Sasikumar-correspondence)

ABSTRACT

A unique black pepper accession with very high dry recovery and high bulk density coupled with round, firm, bold attractive black coloured corns, hitherto unreported in world black pepper gene pool, is collected, characterized and conserved. The berries are of good quality as indicated by the moderate levels of piperine, oleoresin and essential oil. This accession, relatively very tolerant to pests, located from a mixed farming plantation in Palakkad district of Kerala, India, fetches a premium price in the market is an ideal commodity for Geographical Indication(GI) registration as 'Agali black pepper' and holds promise as a novel source of gene(s) for increasing dry weight and bulk density in black pepper .

Key words: Black pepper germplasm, land race, bold pepper corn, dry weight, premium price.

1. INTRODUCTION

Black pepper (Piper nigrum L.), with the sobriquets 'black gold' or 'King of spices' originated in the Western Ghats of India. Cultivar diversity of black pepper, contributed by improved varieties/hybrids, land races, self grown seedlings consciously propagated by farmers and in few cases natural mutation is maximum in India, amongst all producing countries. (Sasikumar et al., 2011; Sasikumar et al. ,2007; Ravindran et al., 2000;,Sasikumar et al., 1999). The Indian Institute of Spices Research, Kozhikode, Kerala, India, the apex organization for black pepper research in the country has been involved in mapping, collecting, characterising and conserving the cultivar diversity of black pepper from its centers of diversity/cultivation in the country.

2. COLLECTION, CHARCTERISATION AND CONSERVATION

Recently, a land race of black pepper, a 'Narayakodi like', with very high dry recovery is located in a progressive farmers' garden near Agali, Palakkad. The planter is Mr. K.V George of Kalluvelil, Thachanpara, Palakkad, Kerala, India. This mixed crop garden located at 1700 feet MSL at the foot hills of the Malleswaran ranges

Amongst the different genotypes of black pepper, only one cultivar, the 'Narayakodi like' (Fig.2) gives dry recovery above 46%. Fresh yield ranges from 8-10 kg vine^{-1}. Alhough the planter thinks it is 'Narayakodi', the features of the vine is not that of the typical land race. The plantation spanning over 25 acres has about 20,000 vines of the 'Narayakodi like' and the farmer gets a premium price for the produce of this particular variety due to its high dry recovery and attractive corns. Another advantage of the cultivar is its high tolerance to pests as compared to other varieties/hybrids in the estate. The plant has light purple shoot tip, semi erect lateral branches and ovate large leaves (13.6x7.5cm) with acuminate tips (Fig.2). The accession is characterised by short, straight spikes with a mean length of 8.33cm (Fig.3), high dry recovery (46%), medium sized, firm, round berries with attractive colour.

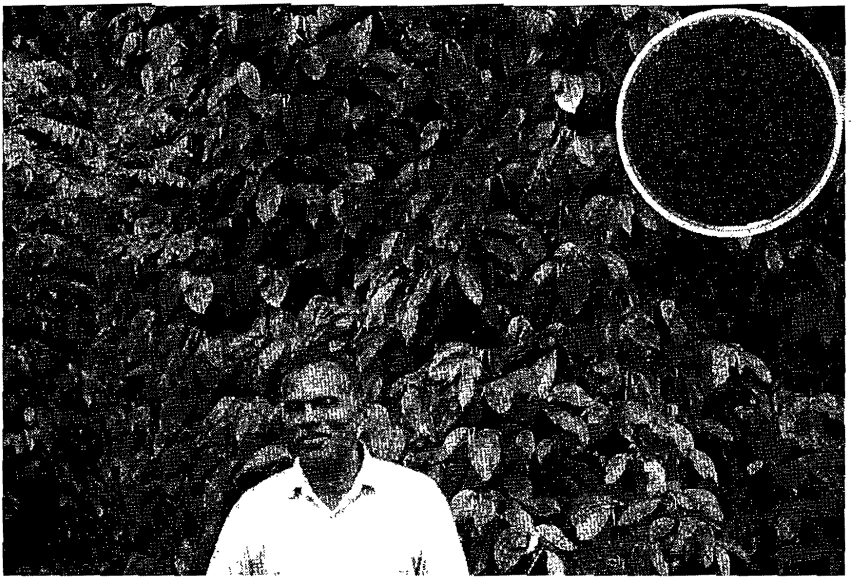

Fig.2 .A close up of the vine with the planter. Inset- dried berries of the vine.

Runner shoots collected from the vine are rooted and established at the Indian Institute of Spices Research. An accession number 7452 is given for the specimen.

(Western Ghats, Lat: 11. 10^0 78'; Long: 76.66^{0}99') receives an annual rain fall of about 4000mm. Mukkali (Silent Valley National Park) is a major nearby land mark to the estate. (Fig.1).

A purely organic garden, it grows cardamom, arecanut and coffee along with black pepper. Black pepper is trailed on multistandards like 'Eetty' (Dalbergia latifolia Roxb.), 'Venga' (Pterocarpus marsupium Roxb.), Erythrina variegata L., arecanut (Areca catechu L.) etc. in the estate. Vines are of age 5-40 years and the varieties/hybrid in the plantation include 'Panniyur-1', 'Karimunda', 'Neelamundi ' etc. besides the 'Narayakodi like'.

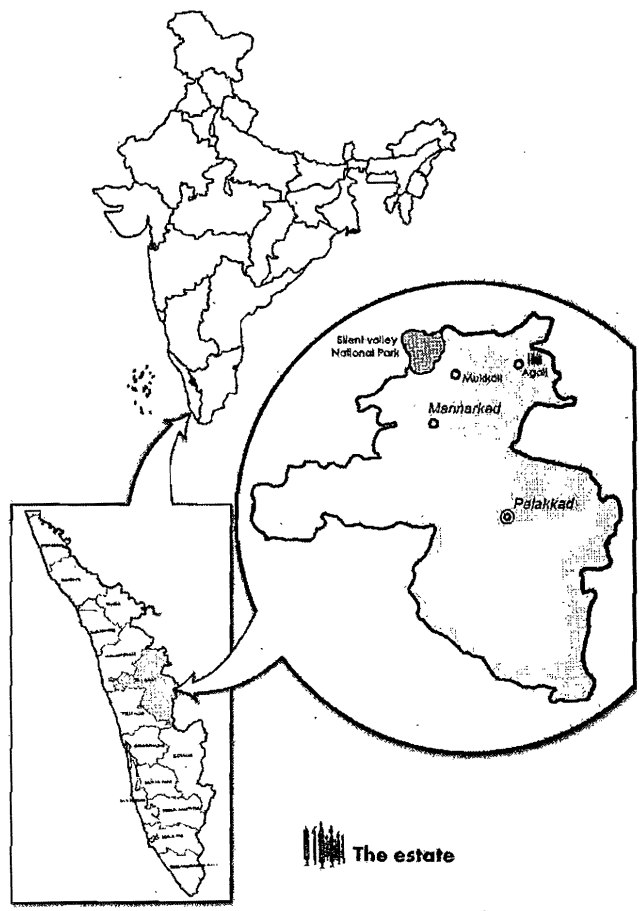

Fig.1.Map of India with Kerala/Palakkad popped up and the location of the estate

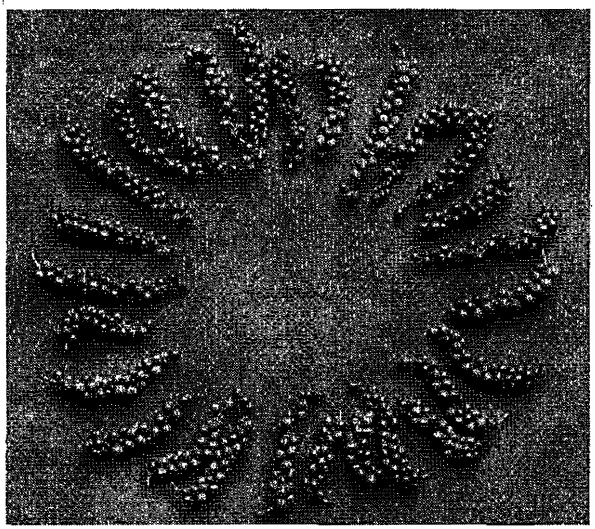

Fig.3 Fruit spikes of the accession

Salient mean morphological and quality features of the accession are given in Table 1.

Table1. Salient features of the black pepper Acc. 7452

Spike length (cm)	8.33
Petiole length (cm)	1.6
No. of berries per spike	37.26
100 berry weight (g)	15.85
100 berry volume (cc)	15.0
Dry recovery (%)	46.0
Bulk density ($g l^{-1}$)	502.2
Essential oil (%)	2.4
Oleoresin (%)	9.26
Piperine (%)	2.54

3. DISCUSSION AND CONCLUSION

Dry recovery is an important yield contributing trait in black pepper. Although at the farmer's level ,the driage is reported to be 50% for this cultivar, at 11% moisture level we could get 46% dry recovery, a remarkable feat at any rate! Reported dry recovery in black pepper ranges from 29—38 percent depending on the variety (Zachariah, 2000). Black pepper genotypes with dry recovery above this level is very rare. Fruit weight (not necessarily dry weight) in black pepper is reported to be of low variability (Ibrahim et al., 1985). This new accession with unusually high dry recovery is thus a unique line which will be a source of new gene for increasing dry weight of black pepper either by direct multiplication or through breeding programs. This unique land race in question, originated probably as a self grown seedling generations ago, might have got the attention of the planter for its high dry recovery coupled with relative high tolerance to diseases and got propagated.

This commodity is an ideal candidate for Geographical Indication (GI) registration as 'Agali black pepper' due its unique quality.

Worldwide surveys in areas of intensive cultivation of black pepper may throw out unique gene sources holding promise in crop improvement of black pepper or to be exploited directly, as already indicated (Saji et al., 2013).

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