IMPROVED VARIETIES OF SPICES RELEASED BY INDIAN INSTITUTE OF SPICES RESEARCH, CALICUT, KERALA

B. Krishnamoorthy, K. Nirmal Babu, B. Sasikumar, K.V. Saji, Johnson K George, J. Rema, D. Prasath, K.N. Shiva, R.R. Nair and T.E. Sheeja *

Spices are high value and low volume, export oriented commodities, which yield aromatic and pungent principles, commonly used for flavouring and seasoning of food and beverages. India is the centre of origin and diversity for major spices like black pepper and cardamom and possibly for ginger and turmeric. Spices played a significant role in Indian history and attracted many explorers and traders since ancient days. India occupies a pre-eminent position in production and global trade of spices and foreign exchange earnings. During 2008-09, the spices export quantity has touched an all time high of 4,70,520 tonnes valued at Rs. 5300.25 crores.

The Indian Institute of Spices Research (IISR), Calicut established during the V Five Year Plan (1975) as a regional station of CPCRI at Calicut was upgraded to National Research Centre for Spices (NRCS) with its head quarters at Calicut by merging the Cardamom Research Center at Appangala, Karnataka during 1986. The centre was further elevated to the Indian Institute of Spices Research (IISR) on 1st July 1995. Since then the institute is conducting basic and applied research on various spices like black pepper, cardamom, ginger, turmeric, vanilla, paprika and tree spices (nutmeg, clove, cinnamon, allspice and garcinia).

The institute holds the world's largest germplasm collection of spices, which are being utilized for evolving varieties having high yield and quality coupled with resistance/tolerance to biotic and abiotic stresses. The collections include 2300 black pepper accessions (besides more than 1400 hybrids and 150 open pollinated progenies), 416 cardamom, 665 ginger, 924 turmeric, 484 nutmeg, 225 clove, 408 cinnamon including cassia, 116 garcinia, 180 allspice, 130 paprika, and 79 vanilla accessions.

Eight high yielding and high quality varieties in black pepper, three in cardamom, three in ginger, seven in turmeric, two in cinnamon and one in nutmeg have been released by the Institute so far (Tables 1 to 6 and Fig.1). These varieties had a great impact in increasing the production and productivity of spices in the country.

* **Indian Institute of Spices Research, Calicut - 673 012, Kerala**

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Fig. 1: Spices varieties released by Indian Institute of Spices Research, Calicut, Kerala

Table 1 : Black pepper varieties released by IISR, Calicut

Variety	Pedigree	Dry berry yield (kg/ha)	Dry recovery (%)	Piperine (%)	Oleoresin (%)	Essential oil (%)
Subhakara	Clonal selection from Karimumda (KS-27)	2352	35.5	3.4	12.4	6.0
Sreekara	Clonal seelection from Karimunda (KS-14)	2677	35.0	5.3	13.0	7.0
Panchami	Clonal selection from Aimpiriyan (Coll. 856)	2828	34.0	4.7	12.5	3.4
Pournami	Clonal selection from Ottaplackal (Coll. 812). Root-knot (Meloidogyne incognita) tolerant	2333	31.0	4.1	13.8	3.4
PLD-2	Clonal selection from Kottanadan (Coll.2559)	2475	31.13	3.0	15.45	4.8
IISR Shakti	Open pollinated progeny of Perambramundi. Tolerant to Phytophthora	2253	43.0	3.3	10.2	3.7
IISR Thevam	Clonal selection of Thevamundi, field tolerant to Phytophthora	2481	32.0	1.65	8.15	3.1
IISR Girimunda	Hybrid between Narayakodi x Neelamundi (suitable for high elevation)	2880	32.0	2.2	9.65	3.4
IISR Malabar Excel	Hybrid between Cholamundi x Panniyur-1 (suitable for high elevation)	1440	32.0	4.95	14.6	4.1

Table 2. Improved varieties of Cardamom released by IISR

Variety	Pedigree	Dry capsule yield (Kg/ha)	Maturity (Days flowering to fruiting)	Essential oil (%)	Terpinyl acetate (%)	1.8 Cineole	Dry recovery (%)
IISR Kodagu Suvasini	OP progeny of CL-37 (small plant type)	745	112	8.7	37	42	22.0
IISR Avinash	OP progeny of CCS-1 (rhizome rot tolerant)	847	115	6.7	34.7	30.4	115
IISR Vijetha	A selection from field resistant plants (resistant to Katte)	643	105	7.9	23.4	44.7	105

Table 3. IISR released varieties of Ginger

Variety	Pedigree	Fresh rhizome yield (t/ha)	Maturity (days)	Dry recovery (%)	Crude fibre (%)	Oleoresin (%)	Essential Oil (%)
IISR Varada (wide adaptability)	Selection from germplasm	22.66	200	20.7	4.5	6.7	1.8
IISR Mahima (plumpy extra bold rhizomes, resistant to *M. incognita and M. javanica* pathotype 1)	Selection from germplasm	23.2	200	23.0	3.3	4.5	1.72
IISR Rejatha (high oil)	Selection from germplasm	22.4	200	19.0	4.0	6.3	2.36

Table 4 : Improved varieties developed and released in turmeric by IISR

Variety	Pedigree	Fresh rhizome yield (t/ha)	Maturity (days)	Dry recovery (%)	Curcu-min (%)	Oleoresin (%)	Essential Oil (%)
Suvarna	Selection from germplasm	17.4	200	26.0	4.0	13.5	7.0
Suguna (Early maturing, field tolerant to rhizome rot)	Selection from germplasm	29.3	190	20.4	4.9	13.5	6.0
Sudarsana (Early maturing, field tolerant to rhizome rot)	Selection from germplasm	28.8	190	20.6	7.9	15.0	7.0
IISR Prabha	Open pollinated progeny selection	37.0	205	19.5	6.5	15.0	6.5
IISR Prathibha	Open pollinated progeny selection	39.1	225	18.5	6.5	16.2	6.2
IISR Kedaram (Resistant to leaf blotch)	Selection from germplasm	34.5	210	18.9	5.7	14.0	-
IISR Alleppey Supreme (Resistant to leaf blotch)	Selection from Alleppey Finger turmeric	35.4	210	19.3	5.5	16.0	-

Table 5 : IISR released varieties of Cinnamon

Variety	Pedigree	Bark Yield Dry (Kg/ha)	Bark Oil (%)	Cinnamal-dehyde in bark oil (%)	Bark Oleoresin (%)	Leaf Oil (%)	Leaf eugenol (%)
IISR Navashree (high cinnamaldehyde & shoot regeneration)	Seedling selection from Srilankan selection	200-250	2.7	73	8	2.8	62
IISR Nithyashree (high bark oleoresin)	Seedling selection from Indian selection	200-250	2.7	58	10	3.0	78

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Table 6. Improved variety released by IISR in Nutmeg

Variety	Pedigree	Yield (Dry- Kg/ha) at 25th year		Oil (%)		Oleoresin (%)		Myristicin (%)	
		Nut	Mace	Nut	Mace	Nut	Mace	Nut	Mace
IISR Viswashree	Clonal selection from elite lines	31220	4800	7.1	7.1	9.8	13.8	12.5	22

'इंडियन जर्नल ऑफ अरीकनट, स्पाइसेस एण्ड मेडिसिनल प्लान्ट्स' पत्रिका के वर्ष 2010 के लिए चन्दा का नवीकरण

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संपादक