



## Identification key for notified varieties and varieties of common knowledge of jute [*Corchorus olitorius* (L.) and *C. capsularis* (L.)]

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(Received: March 2005; Revised: July 2005; Accepted: August 2005)

Varietal testing for Distinctness, Uniformity and Stability (DUS) is the basis for grant of protection of new plant varieties under the Protection of Plant Varieties and Farmers' Rights Act, 2001 [1]. The Act has the provision to compare the candidate variety with the varieties of common knowledge on a set of relevant characteristics prescribed in the National DUS Test Guidelines and commonly accepted for this purpose at the time of filling of the application. The present study was aimed at preparing an identification key for the notified varieties and varieties of common knowledge of jute.

A total of 27 varieties released or notified in India and varieties of common knowledge were studied for 16 morphological characters viz. seedling : premature flowering resistance; plant : branching habit, height; leaf : lamina colour, vein colour, angle, shape, stem colour, stipule colour, days to 50% flowering, days to harvestable maturity, pigmentation of calyx, fruit pigmentation, pod dehiscence, 1000 seed weight and colour of seed coat, with different character states as per the draft National Test Guidelines [2] for DUS testing of jute (Table 1) as UPOV (International Union for Protection of New Varieties of Plants) guidelines for jute are not available. The experiment was conducted during 2003-04 and 2004-05 at two locations viz. CRIJAF, Barrackpore and Central Seed Research Station for Jute and Allied Fibres, Bud Bud, Burdwan, in randomized block design with 3 replications. Nucleus and or breeder seed was used for the study in the first year and later seed grown from the original seed was used for further study. The observations were recorded on 10 plants in each replication at specified stages of crop growth period when the characters under study had full expression. The stages were based on the draft National DUS Test Guidelines for jute, 2004 [2].

The characteristics observed over the years were compared and a final set of morphological characters was assigned to each variety. The varieties along with the character key are given in Table 2. For example,

the variety 'JRO 632' is denoted with the character key - A G G G G W SE OL La G T La G P M B1. The identification key for each variety is the abbreviation of the characters as denoted with the first alphabet of the respective character state in sequence as given in Table 1 with single spacing.

To distinguish the varieties, use of different morphological features in a sequential fashion is useful and convenient [3]. According to Max - Heinrich Thiele - Wittig [4] a characteristic is useful as a descriptor, if it lets the character state expression fall into distinguishable states for qualitative characters. When the distinctness depends on a measured character (Measured Quantitative Characteristics) the difference is considered clear if it occurs within 1% probability of error, i.e. the differences are consistent and occur with the same sign in 2 consecutive, or in 2 of 3 growing seasons. In case of Normally Visually Observed Quantitative Characteristics, the distinguishing characteristic is considered in relation to another variety (generally with the Reference Collection). The varieties with which a variety under test (candidate variety) has to be compared are the varieties whose existence is a matter of common knowledge. The first basis for comparison are normally those varieties which are considered to be similar to the variety under test and are available in the examining state or at the Nodal DUS Testing Centre (varieties of common knowledge). This key in parlance with the draft National Test Guidelines of jute, 2004 [2] indicates its primary suitability as a guideline for DUS testing. Since this key includes all the asterisked (obligatory) characters stated in the Draft National DUS Test Guidelines of jute it will be of great importance in jute varietal identification and protection. Though it primarily is used for describing a variety serving as a ready reckoner for varietal identification by plant breeders and seed certification officers, at the same time helps in grouping the candidate variety with similar varieties. It also helps in investigating

**Table 1.** Table of characteristics as per the draft National Test Guidelines for DUS testing in jute

Sl. No.	Character	Character state	Abbreviation
1.	Seedling : premature flowering resistance ( <i>C. olitorius</i> varieties only)	Absent	A
		Present	P
2.	Leaf : lamina colour	Pale green	PG
		Green	G
		Red	R
3.	Leaf : vein colour	Pale green	PG
		Green	G
		Red	R
4.	Stem : colour	Pale green	PG
		Green	G
		Red	R
		Purple	Pr
		Coppery Red	CR
5.	Stipule : colour	Pale green	PG
		Green	G
		Red	R
		Tip Red	TR
6.	Plant : branching habit	Weak (no effective branching)	W
		Medium (only primary branching)	M
		Strong (Secondary branching)	St
7.	Leaf : angle	Errect (0-40°)	E
		Semi-errect (41-80°)	SE
		Horizontal (81-120°)	H
		Drooping (121-180°)	D
8.	Leaf : shape	Ovate	O
		Ovate-lanceolate	OL
		Lanceolate	L
		Elliptical	EI
		Cordate	C
		Palmate	PI
		9.	Time of flowering (50% of the plants with at least one open flower)
Medium (81-100 days)	M		
Late (> 100 days)	La		
10.	Flower bud : pigmentation of calyx	Pale green	PG
		Green	G
		Red	R
11.	Plant : height	Short (< 301 cm)	Sh
		Medium (301-400 cm)	M
		Tall (> 400 cm)	T
12.	Time of harvest : maturity	Early (< 91 days)	Ea
		Medium (91-110 days)	M
		Late (> 110 days)	La
13.	Fruit : pigmentation	Pale-green	PG
		Green	G
		Red	R
14.	Pod : dehiscence ( <i>C. olitorius</i> varieties only)	Absent	A
		Present	P
15.	Seed : size (weight of 1000 seeds at 10% moisture content)	Small (< 2 g)	S
		Medium (2-3 g)	M
		Large (> 3 g)	Lr
16.	Seed : Colour ( <i>C. olitorius</i> varieties only)	Blue	Bu
		Steel grey	SG
		Chocolate brown	CB
		Black	BI

how sufficiently distinct the candidate variety is in its DUS as claimed by its breeder to justify its protection and registration.

#### References

1. **PPV and FR Act.** 2001. Protection of Plant Varieties and Farmers' Rights Act. (No. 53 of 2001). Dept of Agriculture and Cooperation, Ministry of Agriculture, Government of India, Krishi Bhavan, New Delhi.

**Table 2.** Identification key for the jute varieties released or notified in India and jute varieties of common knowledge as per the National Test Guidelines for jute DUS testing (2004)

Variety	State of Characteristics															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
<i>C. olitorius</i> : Notified varieties																
JRO 632 (Baisakhi Tossa)	A	G	G	G	G	w	SE	OL	La	G	T	La	G	P	M	BI
JRO 3690 (Savitri)	A	G	G	G	G	W	SE	OL	La	G	T	La	G	P	S	BI
KOM 62 (Revati)	P	G	G	R	R	W	SE	OL	La	G	M	La	R	P	S	BI
TJ 40 (Mahadev)	A	G	G	G	G	W	SE	OL	La	G	T	La	G	P	S	BI
JRO 66 (Golden Jubilee Tossa)	A	G	G	G	G	W	SE	OL	La	G	T	La	G	A	M	BI
JRO 524 (Navin)	P	G	G	G	G	W	SE	OL	La	G	M	La	G	A	S	BI
JRO 7835 (Basudev)	P	G	G	G	G	W	SE	OL	La	G	T	La	G	A	S	BI
JRO 878 (Chaitali Tossa)	P	G	R	R	R	W	SE	OL	La	G	T	La	R	A	S	BI
JRO 8432 (Shakti Tossa)	P	G	G	G	G	W	SE	OL	La	G	M	La	G	A	M	BI
JRO 128 (Surya)	P	G	G	G	G	W	SE	OL	La	G	M	La	G	A	S	BI
<i>C. olitorius</i> : Varieties of common knowledge																
JRO 620	A	G	G	Pr	TR	W	SE	OL	La	G	M	La	R	A	S	SG
Chinsurah green	A	G	G	G	G	W	SE	OL	M	G	Sh	M	G	P	S	BI
Sudan green	P	G	G	G	G	W	SE	OL	La	G	Sh	La	G	P	S	BI
Tanganyika 1	P	G	G	G	G	W	SE	OL	La	G	Sh	La	G	P	S	BI
Bidhan rupali	A	PG	PG	PG	PG	W	SE	OL	La	PG	M	La	PG	A	S	SG
JRO 36 E	P	G	G	G	G	W	SE	L	La	G	T	La	G	A	M	SG
<i>C. capsularis</i> : Notified varieties																
JRC 212 (Sabuj Sona)	P	G	G	G	G	M	SE	OL	M	G	M	M	G	A	Lr	CB
JRC 7447 (Shayamali)	P	G	G	G	G	M	SE	OL	La	G	M	La	G	A	Lr	CB
JRC 321 (Sonali)	P	G	G	CR	G	M	SE	OL	M	R	M	M	R	A	Lr	CB
Padma	P	G	G	CR	G	M	SE	OL	La	R	M	La	R	A	Lr	CB
JRC 4444 (Baldev)	P	G	G	G	G	M	SE	OL	La	G	M	La	G	A	Lr	CB
UPC 94 (Reshma)	P	G	G	CR	G	M	SE	OL	M	G	M	M	R	A	Lr	CB
JRC 698 (Shrabanti white)	P	G	G	G	G	M	SE	OL	La	G	M	La	G	A	Lr	CB
Bidhan Pat-1	P	G	G	G	G	M	SE	OL	La	G	M	La	G	A	Lr	CB
Bidhan Pat-2	P	G	G	G	G	M	SE	OL	M	G	M	La	G	A	Lr	CB
Bidhan Pat-3	P	G	G	G	G	M	SE	OL	La	G	M	La	G	A	Lr	CB
<i>C. capsularis</i> : Variety of common knowledge																
D154	P	G	G	G	G	M	SE	OL	La	R	Sh	La	G	A	Lr	CB

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