

Basudha Data Paper No. 8

**An Evaluation of Biochemical Characteristics of Rice (*Oryza sativa* L.)  
Landraces from Eastern India**

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Kolkata

2025

## Introduction

Rice (*Oryza sativa* L.) is a major staple for half of the population worldwide. Different morphological and agronomic traits enable an easy and quick discrimination between varietal phenotypes. These characteristics are generally highly heritable, can be easily seen by the eye and are equally expressed in all environments. Therefore, these traits are assessed to distinguish a landrace population, and the durability, uniformity and stability (DUS) of these traits ensures the genetic purity of the landrace.

Evaluation of most of the DUS characters can be carried out by any farmer or researcher without formal institutional training and technical support. A compilation of these characteristics would be of great value to the farmers to ascertain the genetic purity and stability of the cultivar characteristics. Deb's (2005) pioneering compilation of 36 morphological and agronomic characteristics of 417 *indica* rice landraces is an example.

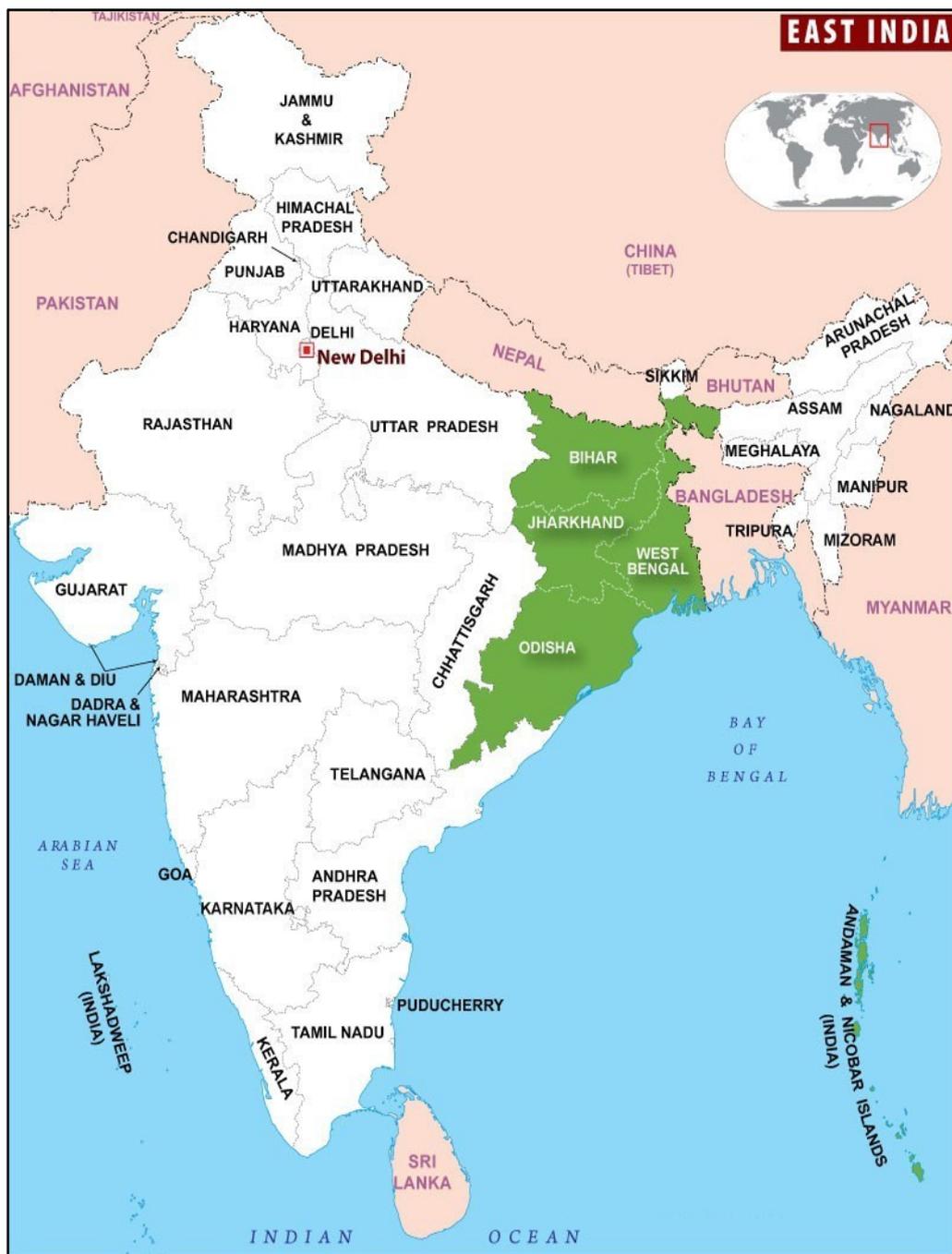
In addition to the morphological descriptors, biochemical descriptors are also important for characterization of rice landraces. Although a few of these biochemical characterization can be carried out by ordinary farmers, proper characterisation would require the use of standardised reagents such as phenol, KOH and thymol blue, and therefore are ideally to be performed in a laboratory. These biochemical descriptors are useful to curators for the management and maintenance of germplasm collection and to all users of rice genetic resources. We present here the first compilation of 6 biochemical descriptors of 878 rice landraces from four states of eastern India.

## Materials

We examined a total of 878 rice varieties from Basudha's accession from four states of eastern India, namely, Bihar, Jharkhand, Odisha and West Bengal (**Fig. 1** and **Table 1**).

**Table 1:** The number of Rice Landraces from Four East Indian States Selected for Chemical Tests.

States	Number of Varieties
Bihar	7
Jharkhand	55
Odisha	310
West Bengal	506
Total	<b>878</b>



**Fig. 1:** Map Showing the States of Origin of the Rice Accessions from Eastern India (in green).

## Methods

For biochemical characterization of the selected rice landraces, we evaluated the following descriptors: *endosperm type*, based on amylose content; *aroma*, based on the presence of 2-acetyl 1-pyrroline (2AP); *alkali digestion*; *gel consistency*, based on the distance travelled by the gel; and *phenol reaction* of the rice hull.

(a) *Endosperm Type*

By visual observation, two types of endosperms of polished rice kernels are distinguishable. In glutinous rice, which does not have amylose, the endosperm appears a waxy white. In non-glutinous rice, which contains amylose, the endosperm appears cloudy and translucent (Bioversity International, IRRI & WARDA 2007). The standard classification is given in **Table 2**.

**Table 2:** Visual Classification of Endosperm Type

Visual Description	Endosperm type
Translucent	Non-glutinous
Cloudy	Intermediate
Waxy	Glutinous

(b) *Aroma*

Basmati-like aroma in fragrant rice landraces is detected when the rice kernel contains 2AP. As there is no transducer for chemical senses, the only reliable method of detection of aroma is by employing the human nose to smell the samples. For smelling, we relied on at least two trained persons to detect the aroma.

Alkali is known to enhance the release of 2AP, and acidification inhibits the release of 2AP. The characteristic smell of 2AP disappears after acid treatment and reappears upon re-alkalization.

Accordingly, we used the method described by Brahmachary and Poddar-Sarkar (2015). We took 4 - 5 grains of unpolished rice kernels in a Petri dish, added 3 drops of 2% (w/v) KOH on the kernels, and left the sample under glass cover for 20 minutes. After 20 minutes the cover was removed for smelling the sample. Regardless of detection of any basmati-like aroma, we subsequently added 4 drops of 2% (w/v) HCl to acidify the sample, upon which the aroma disappeared. After this we added 5-6 drops of 2% (w/v) KOH to re-alkalize the kernels, and cover the Petri dish. After 20 minutes we smelled the sample again, and the presence or absence of Basmati-like aroma was recorded. The strength of the aroma was recorded according to the standard code (**Table 3**):

**Table 3:** Standard Code for the Strength of Aroma due to Presence of 2AP

Strength of Aroma	Code
No aroma	0
Mild	1
Strong	2

(c) *Alkali Digestion*

Alkali digestion was measured by using methods of Little et al. (1958) and Chemutai et al. (2016), with slight modification. We placed 3 - 4 unpolished kernels of each rice landrace in a petri-dish. 3 to 4 drops of 2% (w/v) KOH were added onto the kernels, submerging them in the solution. The petri dishes were then covered and placed at room temperature for 16 hours. After 16 hours the degree of disintegration of the kernels was rated visually according to standard evaluation system for rice by Bioversity International (**Table 4**).

**Table 4:** Standards of the Degree of Alkali Digestion.

<b>Degree of Alkali Digestion</b>	<b>Classification</b>
Grain not affected but chalky	Low
Grain swollen	Low
Grain swollen with collar incomplete	Intermediate
Grain collar complete and wide	Intermediate
Grain split with wide collar	Intermediate
Grain dispersed merging with collar	High
Grain fully dispersed	High

(d) *Gel Consistency*

Gel consistency in rice genotypes was determined by using the methods given in Cagampang et al. (1973), Chemutai et al. (2016) and Sattari et al. (2015) with slight modification. For each landrace, 100 mg rice kernel powder was weighed and placed in a 13 mm X 125 mm test tube, to which 0.2 ml of 95% ethanol containing 0.025% thymol blue was added. 2 ml of 0.2N KOH was added and stirred gently for 30 seconds on an electrical vortex. Subsequently, the test tubes with samples were placed in a boiling water bath at 102 °C for 10 minutes. The test tubes were then kept at room temperature for 5 minutes and then kept in ice bath for 30 minutes. Finally, the tubes were taken out and placed horizontally on a graph paper on a flat surface. After 1 hour, the distance traveled by the gel was measured. From the distance travelled by the gel, the consistency was inferred from the standard classification (**Table 5**).

**Table 5:** Gel Consistency Standards

Gel Distance	Gel Consistency
>60 mm	Soft
40 - 60 mm	Intermediate
< 40 mm	Hard

(e) *Phenol Reaction*

Phenol reaction was assessed by using the method described in Chang and Bardenas (1965), with slight modification. We took a clean Petri dish (90 mm diameter) and marked 4 zones for 4 samples in the Petri dish by writing the sample codes in their respective zones in the dish. We placed 3 rice grains (with husk) of each landrace on its demarcated position, onto which we added 3 drops of 2% phenol solution and kept each Petri dish for 48 hours in a dark place at room temperature. After 48 hours of soaking in phenol, each Petri dishes were taken out one by one and the colour change on the grains of each sample was recorded, following the standard classification (**Table 6**). Most of the *indica* varieties and wild *Oryza* species take on a dark brown or black coloration as a result of polyphenol oxidase activity whereas *japonica* varieties show no colour change.

**Table 6:** Standard Codes of Colour Change in Reaction to Phenol.

Phenol Reaction	Code
No colour change	0
Mild colour change	1
Purple or black	2

## Results

The results of our assessment are given in **Table 7**. Our data presented here are the first quantitative assessment of biochemical characteristics of 878 rice landraces from eastern India, and reveal that 128 landraces (14.58%) are aromatic. Gel consistency for 76 (8.65%) landraces was found to be considerably hard. A total of 39 landraces (4.5%) are glutinous, and 118 landraces (13.5%) are non-reactive to phenol, plausibly indicating the introgression of these traits from *japonica* ancestral lines.

**Table 7:** Evaluation of Biochemical Characteristics of 878 Landraces from East India

Landrace name	Endosperm Type	Aroma	Alkali Digestion	Gel: Mean Distance (mm)	Gel Consistency	Phenol Reaction
<b>STATE: BIHAR</b>						
DHANSIRI	Intermediate	0	Intermediate	117	Soft	1
GHOI BIR	Non-glutinous	0	Intermediate	112	Soft	1
HATI DHAN	Intermediate	0	Intermediate	50	Intermediate	1
LAL SITA	Intermediate	0	Intermediate	85	Soft	1
PITTI DHIRI	Non-glutinous	0	Intermediate	118	Soft	1
SADA CHENGA	Intermediate	0	Intermediate	40	Hard	1
SONASARI	Intermediate	1	Intermediate	110	Soft	2
<b>STATE: JHARKHAND</b>						
ARA BAIHAR	Intermediate	0	Intermediate	120	Soft	2
BADH	Non-glutinous	0	Intermediate	85	Soft	1
BADOWAN	Non-glutinous	0	Intermediate	95	Soft	2
BHURI-SAL	Intermediate	0	Intermediate	92	Soft	2
CHAMARMONI	Non-glutinous	2	Intermediate	104	Soft	2
CHENG-SAL	Intermediate	0	Low	115	Soft	2
CHHOTA JHULPO	Non-glutinous	0	Intermediate	112	Soft	2
CHOURA GODA	Non-glutinous	0	Intermediate	115	Soft	1
DANI GORAH	Intermediate	0	Intermediate	115	Soft	1
GANGABARU	Non-glutinous	0	Intermediate	80	Soft	0
GARIA	Non-glutinous	0	Intermediate	102	Soft	2
GHASRAIZ	Non-glutinous	0	Intermediate	100	Soft	2
HANSGUJI	Non-glutinous	0	Intermediate	97	Soft	2
HENDE BABA	Non-glutinous	0	Intermediate	120	Soft	0
HENDE BAIHAR	Non-glutinous	0	Intermediate	108	Soft	2
HENDE BHADOI	Non-glutinous	0	Intermediate	102	Soft	2
JARHAN BAIHAR	Glutinous	0	Intermediate	75	Soft	2
JHULPO	Intermediate	0	Intermediate	105	Soft	2
JOGA DHAN	Non-glutinous	0	Low	80	Soft	1
JUBRI DHAN	Non-glutinous	0	Intermediate	50	Intermediate	0
KALAM DANI	Non-glutinous	0	Intermediate	2	Hard	1
KALO GORAH	Non-glutinous	0	Intermediate	65	Soft	1
KALO NUNIYA	Non-glutinous	2	Intermediate	105	Soft	1
KARHENI	Non-glutinous	0	Intermediate	102	Soft	2
KARTIK-SAL	Non-glutinous	0	Intermediate	56	Intermediate	1

Landrace name	Endosperm Type	Aroma	Alkali Digestion	Gel: Mean Distance (mm)	Gel Consistency	Phenol Reaction
KASHI PHUL	Non-glutinous	0	Intermediate	100	Soft	1
KATARNI	Non-glutinous	2	Intermediate	115	Soft	2
LAL DHAN	Non-glutinous	0	Intermediate	7	Hard	2
LAL DHEPA	Non-glutinous	0	Intermediate	111	Soft	2
LAL DHUSURI	Intermediate	0	Intermediate	115	Soft	1
LOHNA	Non-glutinous	0	Low	80	Soft	1
MALA	Non-glutinous	0	Intermediate	98	Soft	2
MOTA BAIHAR	Non-glutinous	0	Intermediate	90	Soft	2
MUKTA	Intermediate	0	Intermediate	90	Soft	2
NALPAI	Non-glutinous	0	Intermediate	25	Hard	0
PARBAL	Non-glutinous	0	Intermediate	70	Soft	1
PUN BAIHAR	Non-glutinous	0	Intermediate	90	Soft	1
PUSA BADH	Non-glutinous	0	Intermediate	92	Soft	1
RABAN-SAL	Glutinous	0	Intermediate	67	Soft	0
RAMJIRA	Non-glutinous	2	Intermediate	47	Intermediate	0
RANGALA DHAN	Non-glutinous	0	Intermediate	117	Soft	2
RANGI DHAN	Intermediate	0	Intermediate	58	Intermediate	2
RANGI RAS	Non-glutinous	0	Intermediate	101	Soft	2
RANI KAJAL	Non-glutinous	2	Intermediate	110	Soft	2
RASCHORA	Non-glutinous	0	Intermediate	70	Soft	1
RASSI	Non-glutinous	0	Intermediate	110	Soft	1
SADA DUMRA	Non-glutinous	0	Low	100	Soft	2
SADA PAYJAM	Non-glutinous	0	Intermediate	107	Soft	0
SAFED RAS	Intermediate	0	Intermediate	102	Soft	1
SATHI	Non-glutinous	0	Intermediate	87	Soft	2
SAWANIA	Non-glutinous	0	Intermediate	5	Hard	2
SHATIA BHADOI	Non-glutinous	0	Intermediate	90	Soft	2
SONAM	Non-glutinous	0	Intermediate	56	Intermediate	1
TATU DHAN	Non-glutinous	0	Intermediate	115	Soft	0
TUPRU	Non-glutinous	0	Intermediate	114	Soft	1
<b>STATE: ODISHA</b>						
AGNI-SAL	Non-glutinous	0	Intermediate	110	Soft	2
ASANCHURI	Non-glutinous	0	Intermediate	115	Soft	2
ASHA GOTI	Non-glutinous	0	Intermediate	60	Intermediate	1
ASHABALI	Non-glutinous	0	Low	60	Intermediate	1

<b>Landrace name</b>	<b>Endosperm Type</b>	<b>Aroma</b>	<b>Alkali Digestion</b>	<b>Gel: Mean Distance (mm)</b>	<b>Gel Consistency</b>	<b>Phenol Reaction</b>
ATIYA	Non-glutinous	0	Low	70	Soft	1
ATMA SITALA	Non-glutinous	0	Intermediate	115	Soft	0
BADA DHAN	Non-glutinous	0	Intermediate	86	Soft	2
BADILI MAMI	Non-glutinous	0	Intermediate	95	Soft	1
BADLI DHAN	Intermediate	0	Intermediate	115	Soft	1
BADNA	Non-glutinous	0	Intermediate	97	Soft	2
BAGH BUDI	Non-glutinous	0	Intermediate	75	Soft	2
BAIGANA MANJIA	Intermediate	0	Intermediate	110	Soft	1
BAJI DHAN	Intermediate	0	Intermediate	10	Hard	1
BAKO	Non-glutinous	0	Intermediate	87	Soft	1
BANGLA DHAN	Non-glutinous	0	Intermediate	118	Soft	2
BARENG	Non-glutinous	0	Low	82	Soft	2
BARINGI BED	Non-glutinous	0	Intermediate	102	Soft	1
BARO MOIPAL	Glutinous	0	Low	87	Soft	1
BAROMASI	Non-glutinous	0	Intermediate	75	Soft	2
BASAN KER	Non-glutinous	0	Intermediate	80	Soft	2
BASANTI CHURI	Intermediate	0	Low	56	Intermediate	2
BASHA BHOG	Non-glutinous	1	Low	77	Soft	2
BASMATI NAGNI	Glutinous	0	Intermediate	80	Soft	1
BASNI MUNDI	Non-glutinous	1	Intermediate	75	Soft	2
BASTAR	Intermediate	0	Intermediate	90	Soft	0
BASUMATI	Non-glutinous	2	Intermediate	110	Soft	1
BATA	Intermediate	0	Intermediate	118	Soft	2
BAUSHA BORO	Non-glutinous	0	Intermediate	80	Soft	2
BAUSHA DUBRAJ	Non-glutinous	0	Intermediate	112	Soft	2
BAYA GUNDA	Non-glutinous	0	Intermediate	82	Soft	1
BAYA HUNDAR	Non-glutinous	0	Low	105	Soft	1
BHAINSA-SAL	Non-glutinous	0	Low	90	Soft	2
BHALU	Non-glutinous	0	Intermediate	107	Soft	2
BHALU DUBRAJ	Non-glutinous	1	Intermediate	55	Intermediate	2
BHATA KUJI	Non-glutinous	0	Intermediate	50	Intermediate	2
BHATA MAGADA	Non-glutinous	0	Intermediate	82	Soft	1
BHATA MASURI	Intermediate	0	Intermediate	105	Soft	1
BHATA SOPURI	Intermediate	0	Intermediate	62	Soft	1
BHATA CHURI	Intermediate	0	Intermediate	20	Hard	0

<b>Landrace name</b>	<b>Endosperm Type</b>	<b>Aroma</b>	<b>Alkali Digestion</b>	<b>Gel: Mean Distance (mm)</b>	<b>Gel Consistency</b>	<b>Phenol Reaction</b>
BHATTA GANTHIA	Non-glutinous	0	Intermediate	97	Soft	1
BHATTA MALI	Non-glutinous	0	Intermediate	50	Intermediate	1
BHODA MANJI	Non-glutinous	0	Intermediate	105	Soft	0
BHOGLAYA	Non-glutinous	2	Intermediate	80	Soft	2
BHONDA DHAN	Intermediate	0	Intermediate	82	Soft	2
BHUGUNISAR	Non-glutinous	0	Intermediate	115	Soft	2
BHUIKKNA	Intermediate	0	Intermediate	106	Soft	2
BHULI KER	Non-glutinous	0	Intermediate	110	Soft	0
BHURKUNDI	Non-glutinous	0	Intermediate	42	Intermediate	2
BHUTAI KER	Non-glutinous	0	Intermediate	75	Soft	0
BHUTTA CHURI	Intermediate	0	Intermediate	54	Soft	2
BIDI	Non-glutinous	0	Intermediate	67	Soft	2
BISHNUBHOG	Non-glutinous	2	Intermediate	89	Soft	0
BITA KABERI	Non-glutinous	0	Intermediate	90	Soft	1
BODI KABERI	Non-glutinous	0	Intermediate	85	Soft	2
BETRO	Intermediate	0	Low	72	Soft	2
BOISRI PAT	Non-glutinous	0	Intermediate	105	Soft	2
BUDHI KAKUDIA	Non-glutinous	0	Intermediate	75	Soft	2
BURKUNDI	Non-glutinous	0	Intermediate	62	Soft	1
BURO JARI	Non-glutinous	0	Intermediate	70	Soft	0
BUTA KER	Non-glutinous	0	Intermediate	100	Soft	0
CHAINA GODA	Glutinous	0	Intermediate	105	Soft	2
CHAKRA GODA	Non-glutinous	0	Intermediate	50	Intermediate	1
CHARI NAKHI	Non-glutinous	0	Intermediate	100	Soft	1
CHERI GADI	Non-glutinous	0	Intermediate	90	Soft	2
CHIKLA KOLI	Non-glutinous	0	Intermediate	94	Soft	1
CHINGER	Intermediate	1	Intermediate	115	Soft	2
CHIPTI DHAN	Non-glutinous	0	Intermediate	100	Soft	1
CHIPTI GURMATIA	Non-glutinous	0	Intermediate	85	Soft	0
CHIPTI MASURI	Non-glutinous	0	Intermediate	104	Soft	2
CHUDI DHANA	Non-glutinous	0	Intermediate	106	Soft	1
CHURI DHAN	Non-glutinous	0	Intermediate	60	Intermediate	2
DAHAN PRASAD	Glutinous	1	Low	77	Soft	0
DASHAHARA JHUTI	Non-glutinous	1	Intermediate	84	Soft	2
DASHRA MATHIYA	Non-glutinous	0	Intermediate	100	Soft	2

<b>Landrace name</b>	<b>Endosperm Type</b>	<b>Aroma</b>	<b>Alkali Digestion</b>	<b>Gel: Mean Distance (mm)</b>	<b>Gel Consistency</b>	<b>Phenol Reaction</b>
DEULABHOG	Non-glutinous	2	Intermediate	98	Soft	2
DHABLI MAMI	Non-glutinous	0	Intermediate	90	Soft	2
DHALA LAU	Non-glutinous	0	Intermediate	65	Soft	2
DHALA SAROO	Intermediate	0	Intermediate	78	Soft	0
DHANIA BIJA	Non-glutinous	0	Intermediate	78	Soft	1
DHANKADI DEEPA	Non-glutinous	0	Low	87	Soft	0
DOKRA MESA	Intermediate	0	Intermediate	97	Soft	1
DONDALLOOR	Non-glutinous	0	High	106	Soft	1
DONGAR CHURI	Intermediate	0	Intermediate	45	Intermediate	0
DONGAR DHAN	Intermediate	0	Intermediate	115	Soft	2
DOUBLI	Glutinous	2	Intermediate	29	Hard	2
DUDHA MONI	Non-glutinous	1	Intermediate	90	Soft	1
DULAR	Intermediate	0	Intermediate	45	Intermediate	2
ERUPI SUNA	Non-glutinous	0	Low	50	Intermediate	0
FANDEH	Non-glutinous	0	Low	42	Intermediate	1
FIRIK	Non-glutinous	0	Intermediate	110	Soft	2
GAADA DHAN	Non-glutinous	0	Intermediate	82	Soft	1
GADA KHUTA	Non-glutinous	0	Intermediate	100	Soft	1
GADABA	Intermediate	0	Low	41	Intermediate	2
GADHA	Non-glutinous	0	Intermediate	50	Intermediate	2
GADI CHARI	Non-glutinous	0	Intermediate	72	Soft	2
GANGABALI	Intermediate	2	Intermediate	84	Soft	1
GANGABALU	Non-glutinous	0	Intermediate	70	Soft	0
GANGABHALU	Non-glutinous	0	Intermediate	22	Hard	0
GANJEI LATA	Non-glutinous	0	Intermediate	115	Soft	2
GENTHU NADIA	Non-glutinous	0	Intermediate	110	Soft	1
GHOTIA	Intermediate	0	Intermediate	67	Soft	2
GIDHAN DHAN	Intermediate	0	Intermediate	70	Soft	1
GITE KER	Non-glutinous	0	Intermediate	110	Soft	2
GOBINDA	Non-glutinous	0	Intermediate	100	Soft	0
GONADARU	Non-glutinous	0	Intermediate	79	Soft	1
GOTI SAINA	Non-glutinous	0	Intermediate	52	Intermediate	2
GOTIA	Non-glutinous	0	Intermediate	55	Intermediate	0
GOURI SUNA	Non-glutinous	0	Intermediate	58	Intermediate	0
GOVERNMENT CHURI	Non-glutinous	0	Intermediate	65	Soft	1

<b>Landrace name</b>	<b>Endosperm Type</b>	<b>Aroma</b>	<b>Alkali Digestion</b>	<b>Gel: Mean Distance (mm)</b>	<b>Gel Consistency</b>	<b>Phenol Reaction</b>
GUDMAL	Non-glutinous	0	Intermediate	40	Hard	2
GUMUDI	Non-glutinous	0	Intermediate	95	Soft	1
GURUJI	Non-glutinous	0	High	102	Soft	2
GURUMUKHI	Intermediate	0	Intermediate	92	Soft	2
HALDI	Non-glutinous	0	Intermediate	85	Soft	2
HALDI CHURI	Non-glutinous	0	Intermediate	110	Soft	2
HALDI GANTHI	Non-glutinous	0	Intermediate	78	Soft	1
HALDI ROPA	Non-glutinous	0	Low	105	Soft	0
HALDI SARI	Intermediate	0	Intermediate	75	Soft	1
HARI SHANKAR	Intermediate	0	Intermediate	47	Intermediate	2
HATI GADA KHUTA	Intermediate	0	Intermediate	108	Soft	2
HEERA KHANDI	Non-glutinous	1	Low	62	Soft	1
HUGGI BHUTTA	Glutinous	2	Intermediate	95	Soft	2
IKLE KOTEH	Non-glutinous	0	Intermediate	54	Intermediate	1
ILIKA	Intermediate	0	Intermediate	55	Intermediate	1
JANI JARI	Non-glutinous	0	Low	62	Soft	1
JARA BHOG	Non-glutinous	2	Intermediate	105	Soft	1
JEERA	Non-glutinous	0	Intermediate	112	Soft	1
JHARI KONCHI	Non-glutinous	0	Intermediate	80	Soft	1
JHI GODA	Non-glutinous	0	Intermediate	28	Hard	2
JHITRIKONI	Non-glutinous	0	Intermediate	70	Soft	2
JHULI	Intermediate	0	Intermediate	92	Soft	1
JHULUKI SUNA	Non-glutinous	0	Intermediate	76	Soft	2
JHUMPACHURI	Intermediate	0	Intermediate	42	Intermediate	1
JHUMPURI	Non-glutinous	0	Intermediate	86	Soft	2
JHUPA MALI	Non-glutinous	0	Intermediate	82	Soft	0
JUHI GODA	Non-glutinous	0	Intermediate	98	Soft	2
JUNGLI CHOPA	Non-glutinous	0	Intermediate	45	Intermediate	2
KABA GORI	Non-glutinous	0	Intermediate	90	Soft	2
KABERI	Non-glutinous	0	Low	80	Soft	0
KABERI GANDHA	Non-glutinous	0	Intermediate	60	Intermediate	1
KALA CHURI	Non-glutinous	0	Intermediate	80	Soft	2
KALA DUBRAJ	Non-glutinous	0	Low	50	Intermediate	1
KALA JIRA	Non-glutinous	1	Low	55	Intermediate	2
KALA KESHTO	Non-glutinous	2	Low	45	Intermediate	2

<b>Landrace name</b>	<b>Endosperm Type</b>	<b>Aroma</b>	<b>Alkali Digestion</b>	<b>Gel: Mean Distance (mm)</b>	<b>Gel Consistency</b>	<b>Phenol Reaction</b>
KALA KOLLI	Non-glutinous	0	Intermediate	55	Intermediate	2
KALA KRUSHNA	Non-glutinous	2	Intermediate	55	Intermediate	1
KALA MALLI	Non-glutinous	0	Low	107	Soft	1
KALA MOHARA	Non-glutinous	0	Low	91	Soft	2
KALA NAMAK	Non-glutinous	2	Intermediate	72	Soft	2
KALABATI	Glutinous	0	Intermediate	90	Soft	2
KALABHAT	Non-glutinous	1	Intermediate	72	Soft	2
KALANDIA CHURI	Non-glutinous	0	Intermediate	7	Hard	1
KALARI KUJI	Non-glutinous	0	Intermediate	76	Soft	2
KALASU	Non-glutinous	0	Intermediate	108	Soft	2
KALKSWAR	Non-glutinous	0	Intermediate	117	Soft	0
KALI CHURI	Non-glutinous	0	Intermediate	110	Soft	2
KALIA CHIPTI-1	Non-glutinous	0	Intermediate	108	Soft	2
KALIA CHIPTI-2	Non-glutinous	0	Intermediate	108	Soft	0
KALIA GANTHI	Intermediate	0	Low	91	Soft	2
KALIA KER	Intermediate	0	Low	10	Hard	0
KALIA PALSII	Non-glutinous	0	Intermediate	84	Soft	1
KALIA PARA	Non-glutinous	0	Intermediate	105	Soft	2
KANAKCHAMPA	Non-glutinous	1	Low	40	Hard	1
KANDULA KATHI	Non-glutinous	0	Intermediate	88	Soft	2
KANKURI MANJI	Non-glutinous	0	Low	52	Intermediate	1
KANTA CHURI	Intermediate	0	Intermediate	49	Intermediate	1
KARANGA GODA	Non-glutinous	0	Intermediate	110	Soft	2
KARGA	Non-glutinous	0	Intermediate	42	Intermediate	2
KARI KUJI	Non-glutinous	0	Intermediate	26	Hard	2
KARNA-SAL	Intermediate	0	Intermediate	88	Soft	2
KASAM JHANTI	Non-glutinous	0	Intermediate	71	Soft	1
KASAM JUBA	Non-glutinous	0	Intermediate	46	Intermediate	2
KENDU MUNDI	Intermediate	0	Intermediate	110	Soft	2
KERANDI	Intermediate	0	Low	42	Intermediate	1
KHARAH	Intermediate	0	Low	115	Soft	2
KHEJUR JHOPA	Intermediate	0	Intermediate	110	Soft	1
KHEER MANGA	Intermediate	0	Intermediate	85	Soft	2
KOLAMALI	Non-glutinous	2	Intermediate	100	Soft	1
KOLIYA LENGRI	Intermediate	0	Intermediate	107	Soft	1

<b>Landrace name</b>	<b>Endosperm Type</b>	<b>Aroma</b>	<b>Alkali Digestion</b>	<b>Gel: Mean Distance (mm)</b>	<b>Gel Consistency</b>	<b>Phenol Reaction</b>
KOLKATI	Non-glutinous	0	Intermediate	81	Soft	2
KOLPI LATE	Non-glutinous	0	Intermediate	78	Soft	1
KOMPINI KUJI	Non-glutinous	0	Intermediate	92	Soft	2
KONDHO DHAN	Non-glutinous	0	Intermediate	65	Soft	2
KORO KOYELI	Non-glutinous	0	Intermediate	50	Intermediate	2
KOSHI KAMON	Non-glutinous	0	Intermediate	115	Soft	1
KOYLARAJ	Non-glutinous	2	Low	75	Soft	2
KUDA KHAMA KADA	Non-glutinous	0	Intermediate	22	Hard	1
KUJA DHAN	Non-glutinous	0	Intermediate	70	Soft	1
KURAI	Intermediate	1	Intermediate	105	Soft	0
KURU CHURI	Intermediate	0	Intermediate	24	Hard	1
KUSUMGENDA	Non-glutinous	0	Intermediate	54	Intermediate	2
KUYER KULING	Non-glutinous	2	Intermediate	70	Soft	0
LAGAM KER (=CHURI)	Intermediate	0	Intermediate	27	Hard	1
LAHA RAJA	Non-glutinous	1	Intermediate	105	Soft	0
LAKDI	Non-glutinous	0	Intermediate	22	Hard	1
LAL DHAN (O)	Non-glutinous	0	Intermediate	75	Soft	0
LALU DHAN	Non-glutinous	2	Intermediate	80	Soft	1
LALU DUBRAJ	Intermediate	0	Intermediate	85	Soft	2
LANKESWARI	Non-glutinous	0	Low	104	Soft	2
LASER	Non-glutinous	0	Intermediate	87	Soft	1
LIM CHURI	Intermediate	0	Intermediate	105	Soft	2
LOCHHAI	Non-glutinous	0	Intermediate	112	Soft	1
LOHRI	Non-glutinous	0	Intermediate	117	Soft	2
LOKTI KUJI	Non-glutinous	0	Intermediate	70	Soft	2
LOKTI MOCHI	Non-glutinous	1	Intermediate	65	Soft	2
LOMPOP KER	Non-glutinous	0	Intermediate	105	Soft	1
LUDARI	Non-glutinous	0	Intermediate	108	Soft	2
LUSAW	Intermediate	0	Intermediate	114	Soft	0
MACCHA KANTA	Non-glutinous	1	Low	27	Hard	2
MAGURA	Non-glutinous	0	Intermediate	85	Soft	2
MAHARAJI	Intermediate	2	Low	92	Soft	1
MAHULA KHUSHI	Non-glutinous	0	Intermediate	102	Soft	2
MAL BHUTKA	Intermediate	0	Intermediate	85	Soft	2
MAL GOYENDI	Non-glutinous	0	Intermediate	102	Soft	1

<b>Landrace name</b>	<b>Endosperm Type</b>	<b>Aroma</b>	<b>Alkali Digestion</b>	<b>Gel: Mean Distance (mm)</b>	<b>Gel Consistency</b>	<b>Phenol Reaction</b>
MALIFULJHULI	Non-glutinous	0	Intermediate	58	Intermediate	1
MAMI DHAN	Non-glutinous	0	Intermediate	90	Soft	2
MANGU GADI	Non-glutinous	0	Intermediate	60	Intermediate	2
MATI DHAN	Intermediate	0	Intermediate	70	Soft	2
MATI GANDHA	Intermediate	0	Intermediate	110	Soft	2
MAYER	Intermediate	0	Low	28	Hard	2
MAYURKANTHA	Non-glutinous	0	Intermediate	95	Soft	2
MEGHA DAMBARU	Non-glutinous	0	Intermediate	101	Soft	2
MEHADI	Non-glutinous	0	Intermediate	112	Soft	2
MELIA PATTI	Non-glutinous	0	Intermediate	45	Intermediate	2
MELIA PETI	Non-glutinous	0	Intermediate	90	Soft	2
MESHA	Non-glutinous	0	Low	98	Soft	1
MINCHIRI	Non-glutinous	0	Intermediate	82	Soft	2
MIRLO	Non-glutinous	2	Intermediate	70	Soft	0
MOHUL KUCHI	Non-glutinous	0	Intermediate	122	Soft	1
MOTI MADI	Glutinous	0	Intermediate	5	Hard	1
MOTICHUR	Non-glutinous	0	Intermediate	80	Soft	0
MOYNA TUNDI	Intermediate	0	Intermediate	60	Intermediate	2
MUAH	Intermediate	0	Intermediate	98	Soft	2
MUKTA BALI	Non-glutinous	0	Intermediate	100	Soft	1
MUKTAMALI	Non-glutinous	0	Intermediate	65	Soft	1
MUKTAMANI	Intermediate	0	Low	107	Soft	1
NABABI	Glutinous	0	Intermediate	65	Soft	1
NADA SARIA	Non-glutinous	0	Intermediate	72	Soft	0
NALI PANKHIA	Non-glutinous	0	Intermediate	100	Soft	1
NANJI	Non-glutinous	0	Intermediate	85	Soft	1
NARKJ DHAN	Non-glutinous	0	Intermediate	22	Hard	2
NIYALI GODI	Intermediate	0	Intermediate	52	Intermediate	1
OSHA GONDIAL	Non-glutinous	0	Intermediate	42	Intermediate	1
PADIARAJA	Non-glutinous	0	Intermediate	112	Soft	0
PANDAKA GURA	Intermediate	0	Low	25	Hard	1
PARA	Non-glutinous	0	Low	108	Soft	2
PARANGA	Non-glutinous	0	Intermediate	110	Soft	1
PATHALA (SYN. PATHARA)	Non-glutinous	0	Intermediate	15	Hard	2
PATHAR LUCHA	Non-glutinous	0	Intermediate	50	Intermediate	2

<b>Landrace name</b>	<b>Endosperm Type</b>	<b>Aroma</b>	<b>Alkali Digestion</b>	<b>Gel: Mean Distance (mm)</b>	<b>Gel Consistency</b>	<b>Phenol Reaction</b>
PATON GADA	Intermediate	0	Intermediate	87	Soft	1
PATTA CHURI	Non-glutinous	0	Low	95	Soft	0
PIRIM	Non-glutinous	0	Intermediate	85	Soft	2
PORA DHAN	Intermediate	0	Intermediate	80	Soft	2
POSIKA	Intermediate	0	Intermediate	107	Soft	1
POSRO CHURI	Non-glutinous	0	Low	120	Soft	1
POTO	Glutinous	0	Low	10	Hard	0
RADHA DHAN	Non-glutinous	0	Intermediate	15	Hard	1
RADHA JUGAL	Non-glutinous	0	Low	82	Soft	2
RADHA KAJAL	Non-glutinous	0	Intermediate	72	Soft	2
RAGHUSK	Glutinous	1	Intermediate	2	Hard	1
RAJA BHOG	Non-glutinous	0	Intermediate	90	Soft	2
RANJA MANIK	Non-glutinous	0	Intermediate	85	Soft	2
RAJA RANI	Non-glutinous	0	Intermediate	68	Soft	1
RAJI	Non-glutinous	0	Low	92	Soft	1
RANGA DHAN	Non-glutinous	0	Intermediate	72	Soft	0
RANGA HAZARI	Non-glutinous	0	Intermediate	78	Soft	2
RANI KANDA	Non-glutinous	1	Intermediate	107	Soft	2
RANI KETAKI	Non-glutinous	1	Low	60	Intermediate	2
RANI SIYALI	Glutinous	0	Intermediate	55	Intermediate	1
RATA DHAN	Intermediate	0	Intermediate	45	Intermediate	1
RATANCHURI	Non-glutinous	0	Intermediate	80	Soft	2
RELDO	Glutinous	0	Intermediate	78	Soft	2
SADA JHINGA-SAL	Non-glutinous	0	Intermediate	110	Soft	2
SAHINA	Non-glutinous	0	High	101	Soft	1
SAL JHATI	Intermediate	0	Intermediate	105	Soft	1
SALEKANTHI	Intermediate	0	Intermediate	5	Hard	0
SAMA	Non-glutinous	0	Intermediate	102	Soft	2
SAMUDRA BALI	Non-glutinous	2	Intermediate	102	Soft	0
SANA MOIPAL	Intermediate	0	Low	112	Soft	2
SARASBHOG	Intermediate	2	Intermediate	109	Soft	1
SAROO KALAMALLI	Glutinous	0	Intermediate	100	Soft	2
SATAKA	Intermediate	0	Intermediate	2	Hard	2
SEKARA	Glutinous	0	Intermediate	65	Soft	2
SENDOR	Intermediate	0	Intermediate	107	Soft	1

Landrace name	Endosperm Type	Aroma	Alkali Digestion	Gel: Mean Distance (mm)	Gel Consistency	Phenol Reaction
SETAKA	Intermediate	0	Intermediate	2	Hard	2
SHAMLA	Non-glutinous	0	Intermediate	68	Soft	2
SHANKAR JIRA	Non-glutinous	0	Intermediate	90	Soft	0
SIKALA KALI	Intermediate	0	Intermediate	88	Soft	2
SIKI MUSURI	Non-glutinous	0	Low	99	Soft	1
SITAI	Intermediate	0	Intermediate	104	Soft	1
SOPUR DHAN	Intermediate	0	Intermediate	48	Intermediate	1
SOPUR KER	Intermediate	0	Intermediate	105	Soft	1
SOPURI	Non-glutinous	0	Low	90	Soft	1
SOPURI PADI	Non-glutinous	0	Intermediate	92	Soft	1
SUNA KHADI	Non-glutinous	0	Low	104	Soft	1
SUNA KHADIKA	Non-glutinous	0	Intermediate	100	Soft	1
SUNA SOB	Intermediate	0	Intermediate	20	Hard	1
SUNAMUKHI	Non-glutinous	0	Intermediate	50	Intermediate	0
SUNASARI	Non-glutinous	0	Intermediate	118	Soft	2
SUPARI	Intermediate	0	Intermediate	98	Soft	1
TARMANGA	Non-glutinous	0	Intermediate	50	Intermediate	2
TEMURU CHURI	Non-glutinous	0	Intermediate	111	Soft	2
THAKURBHOG	Non-glutinous	2	Intermediate	80	Soft	0
TIKE CHURI	Intermediate	0	Intermediate	110	Soft	1
TULASI	Non-glutinous	1	Intermediate	109	Soft	2
TULASIBAS	Glutinous	2	Low	67	Soft	0
TULSI GANTHI	Non-glutinous	0	Intermediate	96	Soft	1
UMURI	Non-glutinous	0	Intermediate	95	Soft	1
UMURIA CHURI	Intermediate	0	Intermediate	106	Soft	2
WARANGAL	Non-glutinous	0	Intermediate	102	Soft	1
<b>STATE: WEST BENGAL</b>						
AASH	Non-glutinous	0	Intermediate	62	Soft	1
ABIRBAN	Intermediate	0	Intermediate	115	Soft	2
ADDEY	Intermediate	0	Low	20	Hard	0
AGNIBAN	Intermediate	0	Intermediate	104	Soft	1
AHANA	Non-glutinous	0	Intermediate	98	Soft	0
AJIRMAN	Intermediate	0	Intermediate	106	Soft	1
AKSHAY RANI	Intermediate	0	Intermediate	10	Hard	1
ALSANGA	Non-glutinous	0	Intermediate	71	Soft	2

<b>Landrace name</b>	<b>Endosperm Type</b>	<b>Aroma</b>	<b>Alkali Digestion</b>	<b>Gel: Mean Distance (mm)</b>	<b>Gel Consistency</b>	<b>Phenol Reaction</b>
ALTA PATI	Intermediate	0	Intermediate	112	Soft	2
AMAR-SAL	Non-glutinous	0	Intermediate	70	Soft	2
AMIT	Non-glutinous	0	Intermediate	74	Soft	1
ANNAPURNA	Non-glutinous	0	Intermediate	110	Soft	0
ANSHPHAL	Non-glutinous	0	Low	76	Soft	0
ASANLEYA	Non-glutinous	0	Low	45	Intermediate	1
ASHU	Intermediate	0	Low	100	Soft	2
ASHWIN DHULIA	Non-glutinous	0	Intermediate	82	Soft	1
ASHWIN JHARIA-1	Non-glutinous	0	Low	85	Soft	1
ASHWIN JHARIA-2	Intermediate	0	Intermediate	55	Intermediate	2
ASIT KALMA	Non-glutinous	0	Low	109	Soft	2
ASSAM AUSH	Non-glutinous	0	Intermediate	96	Soft	1
ASURIPAK	Non-glutinous	0	Intermediate	100	Soft	0
AUSHA BONKATA	Non-glutinous	0	Intermediate	115	Soft	1
BABUILATA	Non-glutinous	0	Intermediate	112	Soft	1
BADABONA	Non-glutinous	0	Low	88	Soft	2
BADAM PHOOL	Non-glutinous	0	Low	46	Intermediate	2
BAGH JHAPTA	Non-glutinous	0	Intermediate	65	Soft	0
BAHURUPI	Non-glutinous	0	Intermediate	85	Soft	0
BAID DHUSURI	Intermediate	0	Intermediate	90	Soft	2
BAID DULAH	Non-glutinous	0	Intermediate	91	Soft	2
BAID KALAMKATHI	Intermediate	0	Intermediate	108	Soft	2
BAIDRAS	Intermediate	0	Low	110	Soft	2
BAISH NAGINA	Intermediate	0	Intermediate	50	Intermediate	0
BAKUL PHUL	Non-glutinous	0	Intermediate	105	Soft	2
BALAM	Non-glutinous	0	Intermediate	102	Soft	2
BALARAM-SAL	Intermediate	0	Intermediate	85	Soft	1
BALI BHAJNA	Non-glutinous	0	Low	112	Soft	2
BALIR PINDA	Non-glutinous	2	Intermediate	82	Soft	1
BANGLA PATNAI	Intermediate	0	Intermediate	102	Soft	2
BANK CHUR	Intermediate	0	Intermediate	108	Soft	0
BANKRAH	Intermediate	0	Intermediate	62	Soft	2
BANKUI	Non-glutinous	0	Intermediate	105	Soft	2
BANKULI	Non-glutinous	0	High	70	Soft	2
BANMAK JO	Non-glutinous	0	Low	52	Intermediate	1

<b>Landrace name</b>	<b>Endosperm Type</b>	<b>Aroma</b>	<b>Alkali Digestion</b>	<b>Gel: Mean Distance (mm)</b>	<b>Gel Consistency</b>	<b>Phenol Reaction</b>
BANSH GAJAL	Non-glutinous	0	Intermediate	108	Soft	1
BANSH KANTA	Intermediate	0	Intermediate	77	Soft	1
BANSH KATHI	Intermediate	0	Low	65	Soft	2
BANSH MUGUR	Intermediate	0	Intermediate	87	Soft	2
BANSH MUKHI	Non-glutinous	0	Intermediate	85	Soft	1
BANSH PATA	Non-glutinous	0	Intermediate	115	Soft	2
BANSH PATI	Non-glutinous	0	Low	100	Soft	2
BANSH PATI	Intermediate	0	Intermediate	115	Soft	1
BANSH TARA	Non-glutinous	0	High	94	Soft	2
BANYA-SAL	Non-glutinous	0	Intermediate	92	Soft	2
BARDHAMAN NAGRA	Non-glutinous	0	Intermediate	85	Soft	2
BARDHAMAN PANLOI	Non-glutinous	0	Low	85	Soft	1
BASAN KAYAL	Intermediate	0	Intermediate	109	Soft	1
BASMATI	Intermediate	2	Intermediate	82	Soft	0
BATASA BHOG	Non-glutinous	2	Intermediate	109	Soft	1
BEGUN BICHI	Non-glutinous	0	Intermediate	108	Soft	0
BENAJHURI	Non-glutinous	0	Intermediate	72	Soft	2
BENAPHOOL	Intermediate	1	Intermediate	98	Soft	2
BENGA DHAN	Non-glutinous	0	Intermediate	110	Soft	0
BHALKI	Non-glutinous	0	Intermediate	100	Soft	2
BHALUKI	Intermediate	0	Intermediate	70	Soft	1
BHARAT PATNAI-1	Intermediate	0	Low	56	Intermediate	2
BHARAT PATNAI-2	Non-glutinous	0	Intermediate	100	Soft	1
BHASA KALMI	Intermediate	0	Intermediate	115	Soft	1
BHASA KATHI	Non-glutinous	0	Intermediate	85	Soft	0
BHASAMANIK	Non-glutinous	0	Low	85	Soft	1
BHERAL	Intermediate	0	Intermediate	60	Intermediate	2
BHIM-SAL	Intermediate	2	Intermediate	60	Intermediate	2
BHOG DHAN	Non-glutinous	2	Intermediate	64	Soft	1
BHURI	Intermediate	0	Intermediate	70	Soft	2
BHURI SHULAH	Non-glutinous	0	Intermediate	88	Soft	2
BHUT MOORI	Intermediate	0	Intermediate	58	Intermediate	2
BIRALA	Non-glutinous	0	Low	65	Soft	1
BIROI	Non-glutinous	0	Intermediate	118	Soft	2
BIRPANA	Non-glutinous	0	Intermediate	92	Soft	2

<b>Landrace name</b>	<b>Endosperm Type</b>	<b>Aroma</b>	<b>Alkali Digestion</b>	<b>Gel: Mean Distance (mm)</b>	<b>Gel Consistency</b>	<b>Phenol Reaction</b>
BISH NAGINA	Non-glutinous	0	Low	77	Soft	1
BISHMONI	Intermediate	0	Intermediate	50	Intermediate	1
BOCHI	Intermediate	0	Low	114	Soft	2
BOCHI GONDRI	Non-glutinous	0	Intermediate	70	Soft	0
BODRKSH	Non-glutinous	0	Intermediate	65	Soft	2
BOKRA	Non-glutinous	0	Intermediate	62	Soft	2
BOLOI GKNTI	Intermediate	0	Intermediate	90	Soft	1
BOMBAL MUGI	Glutinous	0	Intermediate	96	Soft	2
BOUBHOG	Non-glutinous	2	Low	80	Soft	0
BOURANI	Intermediate	0	Intermediate	50	Intermediate	0
BRIMPHUL	Non-glutinous	2	Intermediate	115	Soft	2
BURMA BLACK	Intermediate	2	Intermediate	92	Soft	2
CHAKRAMALA	Non-glutinous	0	Intermediate	112	Soft	1
CHAMPA	Non-glutinous	0	Intermediate	120	Soft	1
CHANDRAKANTA	Non-glutinous	0	Intermediate	115	Soft	1
CHAPA KHUSI	Intermediate	0	Intermediate	87	Soft	2
CHATUI MUKHI	Non-glutinous	2	Intermediate	52	Intermediate	0
CHEENA KAMINI	Non-glutinous	2	Intermediate	85	Soft	0
CHEENA PAKRI	Intermediate	0	Intermediate	110	Soft	0
CHENGA	Intermediate	0	Intermediate	101	Soft	2
CHENGA RANGI	Intermediate	0	Low	82	Soft	2
CHERKI JHULLOOR	Intermediate	0	Intermediate	62	Soft	2
CHHOTO NUNIYA	Non-glutinous	1	Intermediate	82	Soft	1
CHILA METEH	Intermediate	0	Intermediate	110	Soft	1
CHILA PATNAI	Intermediate	0	Intermediate	91	Soft	2
CHURNOKATHI	Intermediate	0	Intermediate	105	Soft	2
DADKHANI	Non-glutinous	0	Low	118	Soft	2
DAD-SAL	Non-glutinous	2	Intermediate	107	Soft	1
DAHAR NAGRA	Non-glutinous	0	Low	54	Intermediate	2
DAKSHINA LAGHU	Glutinous	0	Intermediate	85	Soft	2
DANAGURI	Intermediate	2	Low	80	Soft	1
DANGKR BARUAH	Non-glutinous	0	Intermediate	100	Soft	2
DARKA-SAL	Non-glutinous	0	Intermediate	116	Soft	1
DAR-SAL	Intermediate	1	Intermediate	58	Intermediate	2
DAYAL MADINA	Non-glutinous	0	Intermediate	85	Soft	2

<b>Landrace name</b>	<b>Endosperm Type</b>	<b>Aroma</b>	<b>Alkali Digestion</b>	<b>Gel: Mean Distance (mm)</b>	<b>Gel Consistency</b>	<b>Phenol Reaction</b>
DEBDULALI	Non-glutinous	2	High	110	Soft	2
DEHRADUN	Non-glutinous	0	Intermediate	5	Hard	1
DEHRADUN GANDHKSWARI	Non-glutinous	2	Low	50	Intermediate	1
DEHRADUN-BAS	Glutinous	2	Intermediate	72	Soft	1
DEPUTY-SAL	Non-glutinous	0	Low	110	Soft	2
DESHI PATNAI	Non-glutinous	0	Intermediate	101	Soft	2
DHANASHREE	Non-glutinous	0	Intermediate	99	Soft	1
DHEPA	Non-glutinous	0	Intermediate	85	Soft	1
DHOWA-SAL	Non-glutinous	0	Low	105	Soft	1
DHULA DHUSURI	Glutinous	0	Intermediate	40	Hard	1
DHULA-SAL	Non-glutinous	0	Intermediate	102	Soft	2
DHUSURI	Non-glutinous	0	Intermediate	115	Soft	2
DOLLE KARTIKE	Non-glutinous	2	Intermediate	110	Soft	2
DORANGI	Intermediate	0	Intermediate	92	Soft	0
DUDH KALAM	Non-glutinous	0	Low	90	Soft	2
DUDH KALMA	Non-glutinous	0	Intermediate	25	Hard	2
DUDHE BOLTA	Non-glutinous	0	Intermediate	92	Soft	1
DUDHE MATOR	Non-glutinous	0	Intermediate	88	Soft	2
DUDHESWAR	Non-glutinous	0	Intermediate	85	Soft	2
DUKHI DARBAR	Non-glutinous	0	Intermediate	87	Soft	1
DUMRA	Intermediate	0	Low	115	Soft	0
DUMUR-SAL	Non-glutinous	0	Low	82	Soft	1
DURGA	Non-glutinous	2	Intermediate	105	Soft	1
DURGA SUNDARI	Non-glutinous	2	Intermediate	112	Soft	0
DURGA-SAL	Glutinous	0	Intermediate	80	Soft	0
GANDHA MALATI	Non-glutinous	2	Intermediate	45	Intermediate	2
GANDHKSWARI	Non-glutinous	2	Intermediate	108	Soft	1
GANDHI BIROIN	Glutinous	0	Intermediate	60	Intermediate	2
GANGA -SAL	Intermediate	0	Intermediate	102	Soft	2
GANTHIYA	Intermediate	0	Intermediate	92	Soft	2
GARIB-SAL	Intermediate	0	Intermediate	49	Intermediate	2
GAYASUR	Non-glutinous	2	Intermediate	111	Soft	2
GAYERBOT	Intermediate	1	Intermediate	105	Soft	2
GENDI	Intermediate	0	Intermediate	41	Intermediate	2
GENTI-SAL	Non-glutinous	0	Intermediate	84	Soft	2

<b>Landrace name</b>	<b>Endosperm Type</b>	<b>Aroma</b>	<b>Alkali Digestion</b>	<b>Gel: Mean Distance (mm)</b>	<b>Gel Consistency</b>	<b>Phenol Reaction</b>
GENTU	Intermediate	0	Intermediate	115	Soft	2
GETOI	Non-glutinous	0	Intermediate	112	Soft	2
GHAIYA	Non-glutinous	0	Intermediate	96	Soft	1
GHASRAJI	Non-glutinous	0	Intermediate	50	Intermediate	2
GHEOS	Non-glutinous	0	Intermediate	50	Intermediate	0
GHORA -SAL	Non-glutinous	0	Intermediate	25	Hard	1
GHUNSI	Non-glutinous	1	Intermediate	45	Intermediate	2
GHUSURI	Non-glutinous	0	Intermediate	100	Soft	0
GITA	Non-glutinous	0	Intermediate	120	Soft	1
GITANJALI	Intermediate	0	Intermediate	92	Soft	2
GITASHREE	Intermediate	0	Intermediate	104	Soft	2
GOBINDA BHOG	Non-glutinous	2	Intermediate	96	Soft	0
GOCHARI PATNAI	Intermediate	0	Intermediate	40	Hard	1
GODI KHAJRAH	Intermediate	0	Intermediate	45	Intermediate	1
GOPALBHOG	Non-glutinous	2	Low	90	Soft	0
GORAH	Intermediate	0	Intermediate	42	Intermediate	2
GOURI SUNDARI	Non-glutinous	0	Intermediate	82	Soft	2
GOURI SUNNA	Non-glutinous	2	Intermediate	75	Soft	1
GOUR-NITAI	Intermediate	0	Intermediate	115	Soft	1
GOVERNMENT NAGRA	Intermediate	0	Intermediate	47	Intermediate	1
HAIJAM	Non-glutinous	0	Intermediate	107	Soft	0
HALDÉ BATALI	Non-glutinous	0	Low	25	Hard	2
HALDI GURI	Non-glutinous	1	Low	67	Soft	2
HALPUNA LAL	Non-glutinous	0	Intermediate	115	Soft	2
HALUD GANTHI	Non-glutinous	0	High	95	Soft	2
HAMAI	Intermediate	0	Low	22	Hard	0
HAMILTON	Non-glutinous	0	Intermediate	96	Soft	2
HANSESWARI	Non-glutinous	0	Intermediate	42	Intermediate	1
HARIN KAJLI	Non-glutinous	0	Intermediate	5	Hard	2
HARIR JHINGA	Non-glutinous	0	Intermediate	100	Soft	1
HARMA NONA	Intermediate	0	Intermediate	90	Soft	1
HATI CHAMPA	Intermediate	0	Intermediate	57	Intermediate	2
HATI PANJAR	Non-glutinous	0	Intermediate	10	Hard	2
HEERA MOTI	Non-glutinous	0	Intermediate	90	Soft	0
HINCHÉ SAROO	Intermediate	0	Intermediate	55	Intermediate	1

<b>Landrace name</b>	<b>Endosperm Type</b>	<b>Aroma</b>	<b>Alkali Digestion</b>	<b>Gel: Mean Distance (mm)</b>	<b>Gel Consistency</b>	<b>Phenol Reaction</b>
HINCHI LEBU	Intermediate	0	Intermediate	112	Soft	0
HOGLA	Non-glutinous	0	Low	15	Hard	0
HUDAR	Non-glutinous	0	Intermediate	95	Soft	2
ICHHAMATI	Intermediate	0	Intermediate	80	Soft	2
INDRA-SAL	Intermediate	0	Intermediate	70	Soft	2
JAGANNATH BHOG	Intermediate	0	Low	78	Soft	2
JAGANNATH-SAL	Intermediate	0	Low	29	Hard	1
JAL KAMINI	Intermediate	0	Intermediate	52	Intermediate	2
JALDUBI	Glutinous	0	Low	60	Intermediate	2
JAMAI NADU	Non-glutinous	0	Intermediate	85	Soft	2
JAMAI-SAL	Non-glutinous	0	Low	112	Soft	1
JAPAKA	Non-glutinous	2	Intermediate	86	Soft	2
JASHUA	Non-glutinous	0	Intermediate	25	Hard	2
JATA	Intermediate	0	Intermediate	80	Soft	2
JATA KALMA	Glutinous	0	Intermediate	80	Soft	2
JATA LKTA-SAL	Intermediate	0	Low	45	Intermediate	2
JATAKI	Intermediate	0	Intermediate	70	Soft	1
JHANJHI AUSH	Intermediate	0	Intermediate	50	Intermediate	2
JHANTI-1	Intermediate	0	Intermediate	112	Soft	0
JHANTI-2	Non-glutinous	0	Intermediate	118	Soft	1
JHANTI-SAL	Non-glutinous	0	Intermediate	110	Soft	1
JHILI	Non-glutinous	0	High	120	Soft	1
JHINGA	Non-glutinous	0	Intermediate	80	Soft	2
JHINGA-SAIL	Intermediate	0	Intermediate	25	Hard	2
JHINGA-SAL	Non-glutinous	0	Intermediate	115	Soft	1
JHITI PITI	Intermediate	0	Intermediate	109	Soft	1
JHULI-1	Intermediate	0	High	92	Soft	1
JHULI-2	Non-glutinous	0	Intermediate	117	Soft	2
JHULLOOR	Intermediate	0	Intermediate	25	Hard	2
JHULLOOR 16	Non-glutinous	0	Intermediate	72	Soft	2
JHULUK SUNDARI	Non-glutinous	0	Intermediate	72	Soft	2
JHUMIYA SYLHET	Intermediate	0	Low	65	Soft	2
JIRA SARI	Non-glutinous	2	Intermediate	70	Soft	1
JIRA-SAL	Non-glutinous	0	Low	72	Soft	2
JUGAL	Glutinous	0	Intermediate	15	Hard	1

<b>Landrace name</b>	<b>Endosperm Type</b>	<b>Aroma</b>	<b>Alkali Digestion</b>	<b>Gel: Mean Distance (mm)</b>	<b>Gel Consistency</b>	<b>Phenol Reaction</b>
JUNGLI JATA	Intermediate	0	Low	95	Soft	2
KABIRAJ-SAL	Intermediate	0	Intermediate	94	Soft	1
KADALIKA	Intermediate	0	Intermediate	108	Soft	2
KAGGEY	Intermediate	0	Intermediate	112	Soft	2
KAIKE	Non-glutinous	0	Intermediate	78	Soft	2
KAJAL GOURI (SYN. KHAYKR- SAL)	Intermediate	0	Intermediate	95	Soft	2
KAJAL KATHI	Intermediate	0	Low	106	Soft	2
KAJLI	Non-glutinous	0	Low	92	Soft	1
KALA MOCHA	Non-glutinous	0	Intermediate	98	Soft	2
KALAM KATHI	Glutinous	0	Intermediate	57	Intermediate	1
KALATURI	Intermediate	2	Intermediate	97	Soft	0
KALI BHAT	Non-glutinous	1	Intermediate	80	Soft	1
KALI JIRA	Non-glutinous	2	Low	115	Soft	2
KALI KAMOD	Non-glutinous	2	Intermediate	105	Soft	1
KALIRAY	Intermediate	0	Intermediate	102	Soft	2
KALISHANKAR	Non-glutinous	0	Intermediate	65	Soft	1
KALO BORO	Intermediate	0	Intermediate	112	Soft	2
KALO DHAN	Non-glutinous	0	Intermediate	5	Hard	2
KALO DHEPA	Non-glutinous	0	Intermediate	97	Soft	2
KALO DUMRA	Non-glutinous	0	Intermediate	82	Soft	1
KALO METEH	Intermediate	0	Intermediate	5	Hard	2
KALO MOTA	Intermediate	0	Intermediate	50	Intermediate	2
KALO MOTI	Non-glutinous	0	Intermediate	98	Soft	2
KALO TULSI	Non-glutinous	0	Intermediate	100	Soft	1
KAMATH	Non-glutinous	0	Intermediate	112	Soft	1
KAMINI	Non-glutinous	2	Intermediate	40	Hard	2
KAMINIBHOG	Non-glutinous	2	Intermediate	105	Soft	2
KAMINI-SAL	Non-glutinous	2	Intermediate	85	Soft	0
KANAKCHUR	Non-glutinous	2	Intermediate	112	Soft	2
KANKHIRI	Non-glutinous	0	Intermediate	55	Intermediate	1
KANKHRIA	Non-glutinous	0	Intermediate	75	Soft	1
KANKRI	Non-glutinous	0	Intermediate	96	Soft	2
KANKURIA	Non-glutinous	0	Intermediate	80	Soft	1
KANTA JHINGA-SAL	Intermediate	0	Intermediate	85	Soft	2
KANTA RANGI	Non-glutinous	0	Intermediate	94	Soft	2

<b>Landrace name</b>	<b>Endosperm Type</b>	<b>Aroma</b>	<b>Alkali Digestion</b>	<b>Gel: Mean Distance (mm)</b>	<b>Gel Consistency</b>	<b>Phenol Reaction</b>
KANTHALI CHAMPA	Non-glutinous	2	Intermediate	51	Intermediate	0
KARNI	Glutinous	0	Intermediate	94	Soft	2
KARPUR KRANTI	Non-glutinous	1	Intermediate	95	Soft	2
KARPURTUL	Non-glutinous	2	Intermediate	58	Intermediate	0
KARTIKE PATNAI	Intermediate	0	Intermediate	86	Soft	1
KATA RAINI	Intermediate	2	Intermediate	80	Soft	2
KATARIBHOG	Non-glutinous	2	Intermediate	112	Soft	0
KATI JUNGLI	Non-glutinous	0	Intermediate	116	Soft	2
KATKI AUSH	Non-glutinous	0	Intermediate	40	Hard	2
KAYA	Non-glutinous	0	Intermediate	108	Soft	2
KELAS	Intermediate	0	Low	5	Hard	2
KELEH	Non-glutinous	0	Intermediate	56	Intermediate	2
KENDU MANJIA	Intermediate	0	Intermediate	80	Soft	1
KERALA SUNDARI	Non-glutinous	0	Intermediate	46	Intermediate	0
KERMAL	Intermediate	0	Low	7	Hard	2
KESHAB-SAL	Non-glutinous	0	Intermediate	80	Soft	2
KETAKI	Non-glutinous	0	Low	104	Soft	2
KHARISHA BHOG	Non-glutinous	1	Intermediate	107	Soft	2
KHAS DHAN	Non-glutinous	1	Intermediate	108	Soft	0
KHASKANI	Non-glutinous	2	Intermediate	104	Soft	0
KHATIA TIKA	Non-glutinous	0	Intermediate	102	Soft	2
KHEJUR CHHARI	Non-glutinous	0	Intermediate	80	Soft	1
KHOLAM KUCHI	Non-glutinous	0	Intermediate	71	Soft	2
KHUDI KHASA	Non-glutinous	2	Intermediate	116	Soft	0
KINARI	Non-glutinous	0	Intermediate	25	Hard	2
KODALIYA	Non-glutinous	0	Intermediate	46	Intermediate	1
KOKILA PATNAI	Intermediate	0	Intermediate	98	Soft	1
KOLJAM	Non-glutinous	0	Intermediate	97	Soft	1
KRISHNABHOG	Non-glutinous	2	Intermediate	25	Hard	1
KRISHNAMUKHI	Non-glutinous	2	Intermediate	70	Soft	2
KUBJA	Intermediate	0	Intermediate	105	Soft	0
KUJI PATLI	Non-glutinous	0	Low	86	Soft	0
KUMROGORH	Non-glutinous	0	Intermediate	77	Soft	1
KUTTI ADA	Intermediate	0	Intermediate	120	Soft	1
LAKKHAN-SAL	Non-glutinous	1	Low	80	Soft	1

<b>Landrace name</b>	<b>Endosperm Type</b>	<b>Aroma</b>	<b>Alkali Digestion</b>	<b>Gel: Mean Distance (mm)</b>	<b>Gel Consistency</b>	<b>Phenol Reaction</b>
LAKKHI CHURAH	Non-glutinous	0	Intermediate	45	Intermediate	2
LAKKHI DIGHAL	Intermediate	0	Intermediate	85	Soft	2
LAKSHMI JATA	Intermediate	0	Intermediate	120	Soft	2
LAKSHMI KAJAL	Non-glutinous	0	Low	95	Soft	2
LAL AUSH	Non-glutinous	0	Intermediate	86	Soft	1
LAL BADSHABHOG	Non-glutinous	2	Intermediate	60	Intermediate	0
LAL BAHAL	Non-glutinous	0	Intermediate	116	Soft	1
LAL BORO	Non-glutinous	0	Intermediate	15	Hard	2
LAL GETU	Intermediate	0	Intermediate	77	Soft	2
LAL GOBINDABHOG	Intermediate	2	Intermediate	85	Soft	0
LAL JABRA	Non-glutinous	0	Intermediate	117	Soft	1
LAL JHULLOOR	Intermediate	0	Intermediate	60	Intermediate	2
LAL KALAM	Intermediate	0	Intermediate	46	Intermediate	1
LAL KAMAL	Non-glutinous	0	Intermediate	108	Soft	2
LAL KAMINI	Non-glutinous	0	Intermediate	75	Soft	1
LAL KASHI PHUL	Intermediate	0	Intermediate	85	Soft	2
LAL PATNAI	Non-glutinous	0	Intermediate	109	Soft	1
LAL PUA	Intermediate	0	Intermediate	98	Soft	2
LAL SAROO	Non-glutinous	0	Intermediate	80	Soft	2
LALOS	Non-glutinous	0	Intermediate	80	Soft	1
LANGAL MUDA	Glutinous	0	Intermediate	118	Soft	1
LATA-SAL	Intermediate	0	Intermediate	50	Intermediate	2
LATHI-SAL	Glutinous	0	Intermediate	5	Hard	2
LEBU-SAL	Non-glutinous	0	Intermediate	5	Hard	1
LEDA-SAL	Non-glutinous	0	Intermediate	100	Soft	2
LETA-SAL	Non-glutinous	0	Intermediate	73	Soft	1
LILABATI	Non-glutinous	2	Intermediate	70	Soft	1
LOHA GORAH	Non-glutinous	0	Intermediate	102	Soft	1
LOHAJANGI	Non-glutinous	0	Low	117	Soft	2
LUGDHI-SAL	Non-glutinous	0	Intermediate	100	Soft	1
LULI-SAL	Non-glutinous	0	Intermediate	115	Soft	2
MAADU	Non-glutinous	0	Low	95	Soft	2
MADHUMITA	Non-glutinous	0	Intermediate	112	Soft	2
MADHURI	Non-glutinous	0	Low	100	Soft	1
MADRARAJ	Intermediate	0	Intermediate	20	Hard	2

<b>Landrace name</b>	<b>Endosperm Type</b>	<b>Aroma</b>	<b>Alkali Digestion</b>	<b>Gel: Mean Distance (mm)</b>	<b>Gel Consistency</b>	<b>Phenol Reaction</b>
MAGUR-SAL	Non-glutinous	0	Intermediate	90	Soft	2
MAITI	Intermediate	0	High	20	Hard	2
MAJHI JHULLOOR	Non-glutinous	0	Low	80	Soft	2
MALABATI (SYN. ORAMETEH)	Non-glutinous	0	Intermediate	85	Soft	2
MALLIKA	Non-glutinous	0	Intermediate	112	Soft	1
MALLIK-SAL	Non-glutinous	0	Intermediate	105	Soft	2
MARICH BOOT	Non-glutinous	1	Intermediate	45	Intermediate	2
MARICH MUKHI	Non-glutinous	0	Intermediate	108	Soft	1
MARICH MUKUL	Non-glutinous	2	Intermediate	62	Soft	2
MARICH-SAL	Non-glutinous	2	Low	82	Soft	1
MASINEH (SYN. KALO TUDEY)	Intermediate	2	Intermediate	50	Intermediate	2
MATI SARA	Non-glutinous	0	Intermediate	60	Intermediate	2
MATLA	Intermediate	0	Intermediate	102	Soft	2
MEGHNA	Non-glutinous	0	Intermediate	115	Soft	0
MEGHNAD-SAL	Non-glutinous	0	Low	82	Soft	0
MEGI	Intermediate	0	Intermediate	72	Soft	2
MEHDI	Intermediate	0	Low	57	Intermediate	2
MENDI	Intermediate	0	Intermediate	65	Soft	2
MIHI NAGRA	Non-glutinous	0	Intermediate	108	Soft	2
MOHANBHOG	Non-glutinous	2	Intermediate	80	Soft	2
MOHANMALA	Non-glutinous	2	Low	77	Soft	0
MOHANRAS	Non-glutinous	0	Intermediate	110	Soft	2
MOHIPAL	Intermediate	0	High	10	Hard	2
MOTA DHUSURI	Non-glutinous	0	Intermediate	65	Soft	2
MOTI (ST)	Non-glutinous	0	Intermediate	97	Soft	2
MOUL	Non-glutinous	0	Intermediate	67	Soft	2
MOYNA	Non-glutinous	0	Intermediate	105	Soft	2
MOYNAGURI	Intermediate	0	Intermediate	108	Soft	1
MUGAI	Non-glutinous	0	Low	60	Intermediate	1
MUGAI-SAL	Intermediate	0	Low	90	Soft	2
MUGI MANSARA	Non-glutinous	0	Low	115	Soft	2
MUKHI BALAM (SYN. MURGI BALAM)	Intermediate	0	Intermediate	85	Soft	2
MURGI-SAL	Intermediate	0	Low	115	Soft	2
MURI-SAL	Non-glutinous	0	Intermediate	106	Soft	2

<b>Landrace name</b>	<b>Endosperm Type</b>	<b>Aroma</b>	<b>Alkali Digestion</b>	<b>Gel: Mean Distance (mm)</b>	<b>Gel Consistency</b>	<b>Phenol Reaction</b>
NABANNA-SAL	Non-glutinous	0	Intermediate	98	Soft	2
NAGALAND KALO	Glutinous	0	Intermediate	15	Hard	1
NAGALAND SADA	Glutinous	0	Low	105	Soft	2
NAGESWARI	Non-glutinous	0	Intermediate	80	Soft	2
NAGRA	Non-glutinous	0	Intermediate	25	Hard	0
NAGRA PATNAI	Non-glutinous	0	Intermediate	116	Soft	1
NAGRA-SAL	Glutinous	0	Intermediate	50	Intermediate	1
NAJANI	Intermediate	0	Intermediate	58	Intermediate	1
NAJIRMA	Non-glutinous	0	Low	42	Intermediate	2
NARAHASOI	Non-glutinous	0	Intermediate	95	Soft	0
NARASIMHA JATA	Intermediate	1	Intermediate	90	Soft	1
NARKEL CHHARI	Non-glutinous	0	Low	40	Hard	1
NATA	Non-glutinous	0	Intermediate	70	Soft	1
NEORA	Non-glutinous	0	Low	112	Soft	1
NICOH	Non-glutinous	0	Intermediate	60	Intermediate	1
NIKUNJA	Non-glutinous	0	Intermediate	102	Soft	2
NIROJA	Non-glutinous	0	Intermediate	20	Hard	2
NODA MOTA	Non-glutinous	0	Low	75	Soft	2
NOICHI	Non-glutinous	0	Intermediate	95	Soft	2
NONA	Non-glutinous	0	Intermediate	85	Soft	1
NONA BOKRA	Non-glutinous	0	Low	72	Soft	2
NONA KETKI	Non-glutinous	0	Intermediate	116	Soft	1
NONA KHIRISH	Non-glutinous	0	Intermediate	85	Soft	1
NONA-SAL	Intermediate	0	Intermediate	82	Soft	1
OLEE	Non-glutinous	2	Intermediate	70	Soft	2
ORAH	Non-glutinous	0	Intermediate	68	Soft	1
PAADU	Non-glutinous	0	Intermediate	100	Soft	2
PAAN	Intermediate	0	Intermediate	58	Intermediate	1
PAARI	Non-glutinous	0	Low	70	Soft	1
PADMA-SAL	Non-glutinous	0	Intermediate	112	Soft	1
PAKRI	Non-glutinous	0	Low	103	Soft	0
PALBERI	Non-glutinous	0	Intermediate	102	Soft	0
PALOI	Non-glutinous	0	Intermediate	88	Soft	2
PALOI THOPA	Non-glutinous	2	Low	51	Intermediate	2
PANATI	Non-glutinous	0	Intermediate	58	Intermediate	2

<b>Landrace name</b>	<b>Endosperm Type</b>	<b>Aroma</b>	<b>Alkali Digestion</b>	<b>Gel: Mean Distance (mm)</b>	<b>Gel Consistency</b>	<b>Phenol Reaction</b>
PANI BHASA	Non-glutinous	0	Low	110	Soft	1
PANI DUBA	Glutinous	0	Low	85	Soft	1
PANI KALAM	Non-glutinous	0	Intermediate	82	Soft	2
PANI KALAS	Non-glutinous	0	Intermediate	68	Soft	1
PANI NOLI DHAN	Non-glutinous	0	Intermediate	95	Soft	1
PANIRUI	Non-glutinous	0	Intermediate	100	Soft	2
PANJAB-SAL	Non-glutinous	0	Intermediate	82	Soft	0
PARA DHAN	Non-glutinous	0	Intermediate	98	Soft	2
PARAMITA	Non-glutinous	0	Intermediate	111	Soft	1
PARANGI	Non-glutinous	0	Intermediate	67	Soft	2
PARI	Non-glutinous	0	Intermediate	70	Soft	2
PARMAI-SAL	Non-glutinous	1	Intermediate	117	Soft	2
PATENI	Non-glutinous	0	Intermediate	64	Soft	1
PATNAI	Intermediate	0	Low	110	Soft	2
PATNAI-22	Intermediate	0	Intermediate	102	Soft	1
PAYJAM	Non-glutinous	0	Low	115	Soft	0
PHUL MUGRI	Intermediate	0	Intermediate	115	Soft	1
PHUL PAKRI	Non-glutinous	0	Low	62	Soft	2
PRIYA	Intermediate	0	Intermediate	116	Soft	1
PUTIKANI	Non-glutinous	0	Intermediate	82	Soft	2
RADHA KALMA	Non-glutinous	0	Low	86	Soft	2
RADHASHREE	Intermediate	1	Intermediate	60	Intermediate	1
RADHATILAK	Non-glutinous	2	Intermediate	58	Intermediate	0
RADHUNI PAGAL	Non-glutinous	2	High	99	Soft	2
RAGHU-SAL	Intermediate	0	Intermediate	82	Soft	2
RAJ JHINGA	Non-glutinous	0	Low	117	Soft	2
RAJLAKSHMI	Non-glutinous	0	Intermediate	72	Soft	1
RAMBOK	Non-glutinous	2	Low	90	Soft	1
RAM-SAL	Non-glutinous	0	Intermediate	92	Soft	0
RANGA DHARI	Non-glutinous	0	Low	50	Intermediate	2
RANGI	Non-glutinous	0	Low	40	Hard	2
RANI AKAND	Non-glutinous	0	Intermediate	85	Soft	2
RANI KAJAL	Non-glutinous	2	Intermediate	120	Soft	2
RANI-51	Non-glutinous	0	Intermediate	82	Soft	2
RANI-SAL	Non-glutinous	0	Intermediate	70	Soft	2

<b>Landrace name</b>	<b>Endosperm Type</b>	<b>Aroma</b>	<b>Alkali Digestion</b>	<b>Gel: Mean Distance (mm)</b>	<b>Gel Consistency</b>	<b>Phenol Reaction</b>
RAS PANJOR	Non-glutinous	0	Low	75	Soft	1
RASARAJ	Intermediate	0	Intermediate	88	Soft	2
RATA-SAL	Non-glutinous	0	Intermediate	90	Soft	1
RATI-SAIL	Non-glutinous	0	Intermediate	66	Soft	1
RATUL AUSH	Non-glutinous	0	Intermediate	20	Hard	1
REDA DHAN	Intermediate	0	Intermediate	81	Soft	1
ROOPSA	Non-glutinous	0	Intermediate	90	Soft	2
RUP-SAL	Intermediate	0	Intermediate	55	Intermediate	2
SABAN-SAL	Intermediate	0	Intermediate	2	Hard	1
SABITA PATNAI	Non-glutinous	0	Intermediate	58	Intermediate	1
SABRAJ	Non-glutinous	0	Intermediate	105	Soft	2
SADA DHAN	Non-glutinous	0	Low	114	Soft	2
SADA DHULA-SAL	Non-glutinous	0	Intermediate	110	Soft	2
SADA GETU	Intermediate	0	Intermediate	105	Soft	2
SADA JABRA	Intermediate	0	Low	116	Soft	2
SADA JHINGA-SAL	Intermediate	0	Intermediate	105	Soft	2
SADA JHULLOOR	Intermediate	0	Low	90	Soft	2
SADA KAYA	Intermediate	0	Intermediate	5	Hard	2
SADA METEH	Intermediate	0	Low	108	Soft	2
SADA MOTA	Intermediate	0	Intermediate	91	Soft	0
SADA NUNIYA	Non-glutinous	2	Intermediate	40	Hard	0
SADA PARMAL-SAL	Intermediate	0	Intermediate	105	Soft	2
SADA PATNAI	Intermediate	0	Intermediate	102	Soft	2
SAGARIKA	Glutinous	0	Intermediate	95	Soft	2
SAMUDRA PHEN	Intermediate	0	Intermediate	68	Soft	1
SAROO AUSHA	Intermediate	0	Intermediate	62	Soft	2
SAROO GURGURI	Intermediate	0	Low	95	Soft	1
SAROO NAGRA	Intermediate	0	High	60	Intermediate	2
SATEEN	Non-glutinous	0	Intermediate	90	Soft	0
SESH PHAL	Non-glutinous	0	Low	101	Soft	2
SHAKTI	Non-glutinous	0	Low	108	Soft	1
SHAL KELEH	Non-glutinous	0	Low	85	Soft	2
SHANKARI KOMAL	Non-glutinous	0	Intermediate	107	Soft	1
SHATI	Non-glutinous	0	Intermediate	87	Soft	2
SHATI JKLKH	Non-glutinous	0	Intermediate	62	Soft	1

<b>Landrace name</b>	<b>Endosperm Type</b>	<b>Aroma</b>	<b>Alkali Digestion</b>	<b>Gel: Mean Distance (mm)</b>	<b>Gel Consistency</b>	<b>Phenol Reaction</b>
SHATIA	Non-glutinous	0	Intermediate	82	Soft	1
SHATIA GORAH	Non-glutinous	0	Intermediate	80	Soft	2
SHISHAPHAL	Non-glutinous	0	Intermediate	68	Soft	1
SHIULI	Non-glutinous	0	Intermediate	92	Soft	1
SHIULI MUKUL	Non-glutinous	2	Intermediate	58	Intermediate	2
SHIYAL RAJ	Non-glutinous	0	Intermediate	72	Soft	2
SHOLEH	Non-glutinous	0	Intermediate	115	Soft	2
SHOLPANA	Intermediate	0	Low	110	Soft	2
SHOTPUT	Intermediate	0	Intermediate	108	Soft	1
SHUA KALMA	Non-glutinous	0	Low	105	Soft	1
SHUNGO BARAN	Intermediate	0	Low	92	Soft	2
SILOT	Intermediate	0	Intermediate	28	Hard	2
SINDOOR-SAL	Intermediate	0	Low	80	Soft	2
SITABHOG	Non-glutinous	0	Intermediate	50	Intermediate	1
SITA-SAL	Non-glutinous	0	Intermediate	92	Soft	2
SOLERI	Intermediate	1	Low	50	Intermediate	0
SONA DHUSURI	Glutinous	0	Intermediate	50	Intermediate	2
SONAJHULI	Glutinous	0	Intermediate	115	Soft	2
SOPTI	Non-glutinous	0	Intermediate	110	Soft	2
SRABANTI-SAL	Non-glutinous	0	Low	71	Soft	2
SUBAL-SAL	Glutinous	0	Low	60	Intermediate	0
SUBASITA	Intermediate	2	Intermediate	79	Soft	0
SUMITRA	Non-glutinous	0	High	95	Soft	2
SUNDAR MUKHI	Non-glutinous	0	Intermediate	52	Intermediate	2
SUNDARI	Non-glutinous	2	Intermediate	2	Hard	2
SWARNAKANTI	Non-glutinous	2	Intermediate	102	Soft	0
TALMUGUR	Intermediate	0	Intermediate	118	Soft	2
TENGRA-SAL	Non-glutinous	0	Intermediate	70	Soft	2
THAKUR-SAL	Non-glutinous	0	Intermediate	112	Soft	2
THUBA	Non-glutinous	0	Intermediate	72	Soft	2
TIKARNADI	Non-glutinous	0	Intermediate	62	Soft	2
TIKIA PATNAI	Non-glutinous	0	Intermediate	112	Soft	2
TILAK KACHERI	Non-glutinous	0	Low	110	Soft	1
TILAKPETI	Non-glutinous	0	Intermediate	114	Soft	2
TITABOR	Non-glutinous	0	Intermediate	108	Soft	1

<b>Landrace name</b>	<b>Endosperm Type</b>	<b>Aroma</b>	<b>Alkali Digestion</b>	<b>Gel: Mean Distance (mm)</b>	<b>Gel Consistency</b>	<b>Phenol Reaction</b>
TULAI PANJI	Non-glutinous	2	Intermediate	102	Soft	0
TULO PAJOY	Non-glutinous	0	Intermediate	112	Soft	1
TULSI BASMATI	Non-glutinous	1	Intermediate	62	soft	2
TULSI MANJARI	Non-glutinous	2	Intermediate	115	Soft	1
TULSI MUKUL	Non-glutinous	2	Intermediate	115	Soft	1
TULSIBHOG	Non-glutinous	1	Intermediate	60	Intermediate	0
TULSIBHOG (N)	Non-glutinous	2	Intermediate	80	Soft	2
YESEM	Intermediate	0	Intermediate	40	Hard	1

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## Acknowledgments

We are indebted to Mr. Avik Saha for providing full infrastructural and logistic support to our research. We are grateful to Dr Payel Das, Ms Sangita Dey and Ms Priya Mandal for standardisation of all methods adopted in this study and for a preliminary assessment of some of the landraces examined here. This work received no institutional funding.

## Conflict of Interest

Authors declare no conflict of interest.