

# Index

## A

Acetic acid, 2, 33, 34  
2-Acetyl-1-pyrroline (2AP), 2–4, 32, 57–60,  
62–76, 79, 80, 89–94, 109, 114, 126  
Acharmati, 13, 15, 27, 34, 37, 40, 42, 44, 48, 49,  
52, 53, 61, 76, 82, 87, 112, 116, 117, 119,  
122–124, 126, 127, 129, 132  
Adamchini, 8, 12, 15, 27  
Adamchini-B, 15, 27  
ADP-glucose pyrophosphorylase, 110  
Agricultural Research Institute, New Delhi, 9, 111  
Agricultural Research Station (Paddy), Sirsi, 9  
Agricultural Rice Research Station, Radhanagari,  
9, 62, 111  
Aliphatic alcohols, 75, 86, 91, 93  
Aliphatic aldehydes, 75, 81–85, 89, 90, 92  
Alkali digestibility test, 35  
Alkali spreading value, 32, 35, 44, 53–55  
Alkene and acid, 86–89  
Ambemohar, 1, 2, 8, 9, 11, 13, 27, 34, 36–38, 40–42, 44,  
48, 49, 52, 57, 59, 61, 66–68, 70, 71, 75, 76, 81,  
82, 87, 107, 112, 115, 116, 119, 120, 126–132  
Ambemohar Ajra, 8, 9, 13, 27, 34, 36–38, 40, 42, 44, 48,  
49, 52, 61, 75, 76, 82, 87, 112, 115, 116, 119,  
126–129, 131, 132  
Ambemohar Pandhara, 8, 9, 13, 27, 34, 37, 40, 52, 61,  
76, 82, 87, 112, 116, 119, 126–129, 131, 132  
Ambemohar types, 59, 66–68, 71, 115, 119,  
120, 128, 131  
Ambemohar-102, 11  
Ambemohar-159, 11  
Ambemohar-Tambda, 8, 9, 13, 27, 34, 36, 37, 40, 42,  
44, 48, 49, 52, 61, 76, 82, 87, 112, 115, 116,  
119, 126–132  
Ambemori, 13, 15, 34, 37, 40, 52  
2 Amino acetophenone, 62, 75, 76, 79, 80, 90–93  
Amplified fragment length polymorphism (AFLP),  
4, 108, 113–126, 130  
Amritbhog, 15, 27, 61, 72, 75, 76, 82, 87  
Amylose contents, 2, 31, 32, 34, 39–41, 48, 55, 109, 110,  
114, 128, 130, 131, 133  
Apiculus, 9, 11, 14, 27, 28  
Apparent amylose content, 33, 34, 39–41, 53, 54, 110,  
111, 114, 128, 130, 131

Aromatic and nitrogen containing aromatic  
compounds, 79

Awn color, 9, 14

Awning, 9, 11, 14, 28

## B

Badh2.1 allele, 110  
Badshahbhog, 12, 15, 27, 32, 34, 36–38, 40, 48, 52, 75,  
81, 91, 92, 112, 115, 117, 119, 120, 122–124  
Banaspatri, 11, 12  
Bansphool-A, 15, 27, 113, 116, 117, 122–124  
Bantaphool, 12, 15, 27  
Bantaphool-A, 15, 27  
Barke bhat, 15, 27, 34, 37, 40, 42, 52, 61, 76, 82, 87,  
113, 116, 117, 126, 127, 129, 132  
Basmati 370, 8, 15, 27, 34, 36, 38–42, 44, 48, 49, 53, 59,  
61, 67, 68, 71, 72, 75, 76, 81, 82, 87, 91, 93, 113,  
115–117, 119, 120, 127–129, 132  
Basmati 376, 61, 76, 81, 82, 87  
Basmati 386, 61, 72, 76, 79, 81, 82, 87  
Basmati 6311, 61, 76, 79, 81, 82, 87, 113, 115–117,  
127–129, 132  
Basmati types, 1, 8, 14, 24, 31, 36, 38, 39, 41, 48, 57, 59,  
66–68, 70–71, 79, 81, 107–109, 115, 117, 119,  
120  
Basumati, 9, 13, 27, 34, 36, 37, 39, 40, 42, 48, 49, 52,  
60, 61, 66, 67, 69, 70, 75, 76, 79, 82, 87, 112,  
115, 116, 121, 123, 126, 127, 129, 132  
Bela blue, 15, 27, 34, 36–38, 40, 52, 61, 76, 82, 87  
Benzyl alcohol, 60, 62, 67, 68, 70, 75, 76, 79, 80, 89–92  
Betaine aldehyde dehydrogenase 2 (*badh2*), 4,  
109–111, 126, 133  
Bhogavati, 15, 27, 61, 76, 81, 82, 87  
Bindli, 1, 2, 8  
Bishnubhog, 15, 27, 61, 76, 82, 87  
BP-20 capillary column, 59

## C

Carboxen/divinylbenzene/poly-dimethyl-siloxane  
(PDMS) fiber, 59  
Center for DNA Fingerprinting  
and Diagnostics (CDFD), 57

- Champakali, 8, 11, 13, 27, 34, 36, 37, 40, 42, 44, 52, 61, 76, 82, 87, 112, 115–117, 119–121, 126, 127, 129–132
- Chandrapur district, 9, 119
- Chimansal, 8, 9, 13, 27, 34, 37, 40, 41, 49, 52, 61, 76, 79, 82, 86, 87, 112, 116, 117, 119, 121, 126, 127, 129, 132
- Chinikamini, 13, 15, 27, 49
- Chinoor, 2, 9, 11, 12, 36, 57, 60, 67, 69–72, 81, 107, 119
- Chitak bhat, 8, 13, 34, 36, 38–41, 44, 53, 61, 75, 76, 81, 82, 86, 87
- Chromosome segment substitution (CSS) lines, 111
- Cleaved amplified polymorphic sequences (CAPS), 110, 130, 133
- Coefficient of elongation, 32, 35, 48, 53–55
- Coefficient of latitudinal expansion, 32, 35, 53–55
- Cooking and eating qualities, 2, 31, 48, 109, 130
- Cooking coefficient, 32, 35, 48
- CSR-30, 15, 27
- Cuban rice, 108, 120
- D**
- Decanal, 2, 60, 62, 67, 68, 70, 75, 80–82, 86, 90–93
- Della, 1, 109
- Dhanprasad, 15, 27
- Distance matrix, 113, 115, 121–125
- Distinctness, uniformity and stability (DUS) testing, 126
- Dubraj, 2, 8, 12, 15, 27, 34, 37, 40, 41, 48, 49, 52, 57, 60, 61, 67, 69–71, 75, 76, 82, 87, 107, 113, 115–117, 119, 122–124, 127, 129, 130, 132
- Dubrajseena, 12, 15, 27, 61, 76, 79, 82, 87
- Duncan's multiple range test (DMRT), 60, 62, 72, 114, 128
- Durgabhog, 12, 15, 27
- Dusara, 15, 27, 34, 37, 40–42, 44, 52, 61, 76, 82, 86, 87, 113, 116, 117, 122–124, 127, 129, 130, 132
- E**
- (*E,E*)-2,4-decadienal, 2
- (*E,E*)-2,4-nonadienal, 2, 90
- (*E,E*)-nona-2,4-dienal, 62, 75, 80, 81, 86, 90–92
- Egyptian rice, 117, 120
- Elaichi, 13, 15, 27, 34, 37, 40, 52, 61, 76, 82, 87
- (*E*)-2-nonenal, 2
- (*E*)-2-octenal, 2
- Equilibration time and adsorption, 59
- Evolved basmati, 108, 111
- Extraction phase, 58
- F**
- Fgr*, 3, 4
- Flame ionization detector (FID), 59, 64, 65
- Fused silica fiber, 58
- G**
- Gandhesale, 13, 15, 34, 37, 40, 52, 61, 76, 81, 82, 86, 87, 112, 115, 116, 121, 123
- Gas chromatography (GC), 58–60, 62, 64, 65, 67, 72, 108
- Gatia, 13, 15, 27, 61, 75, 76, 83, 87
- GC-MS, 59
- Geerige sanna, 13, 15, 34, 36–38, 40, 42, 52, 61, 76, 83, 87, 112, 115, 116, 127, 129, 130, 132
- Gel consistency, 2, 31, 32, 35, 39, 41–43, 48
- Gelatinization temperature, 2, 31, 35, 39, 41, 47, 48
- Genetic dissimilarity, 115, 119
- Genetic similarity, 119
- Genotype specific bands, 120, 126, 130
- Gham, 8, 11, 13, 27, 34, 36, 37, 39–42, 44, 48, 49, 52, 61, 76, 81, 83, 87, 112, 116, 117, 119–121, 126, 127, 129, 132
- Ghansal, 1, 8, 11, 13, 27, 34, 37, 40–42, 44, 49, 52, 60, 61, 66, 67, 69, 71, 72, 75, 76, 81, 83, 87, 112, 115, 116, 119–121, 127, 129, 132
- Girga, 8, 9, 13, 27, 34, 37, 40–42, 44, 52, 61, 75, 77, 81, 83, 87, 112, 115, 116, 121, 127, 129, 131, 132
- Giriga sambha, 12, 119
- Glutinous rice, 70, 74, 86, 92, 93, 110, 130
- Gopalbhog, 8, 12, 15, 27, 49
- Grain morphology, 9, 11, 14, 24, 26–28
- Grain quality, 4, 32, 33, 37–39, 41, 109
- Grain shape, 2, 32, 33, 36, 39
- Grain size, 2, 31, 32, 36, 38
- Guaiacol, 2, 60, 62, 67, 68, 70, 75–78, 80, 81, 90–93
- H**
- Hansraj, 8, 57, 107, 108, 119
- Headspace, 58, 59, 61, 63–65, 67, 89–90, 110
- Headspace-SPME (HS-SPME), 58–59, 62–64
- Heptanal, 2, 62, 67, 75, 80–82, 86, 89–92, 99
- 2-Heptanone, 2
- Hexanal, 2, 60, 62, 67, 68, 70, 75, 80–82, 86, 89–92, 97
- 1-Hexanol, 62, 67, 75, 80, 86, 87, 89–92, 103
- Histochemical test, 57
- I**
- Indole, 2, 60, 62, 67, 68, 70, 75, 76, 79–81, 89–93
- Indole, p-xylene, 2
- Indrayani, 8, 9, 11, 13, 27, 34, 36, 37, 40, 42, 44, 49, 52, 60, 61, 66, 67, 69–71, 75, 77, 83, 87, 112, 116, 117, 120, 121, 123, 127, 129, 132
- Indrayani types, 66, 69, 70
- Inter-simple sequence repeats (ISSRs), 108, 119, 120
- J**
- Japonica* varietal group, 110
- Jasmine, 1, 3, 63, 109
- Jaya, 61, 77, 83, 87, 113, 115–117, 120, 122, 124, 125, 127, 129–132
- Jeeraphool, 15, 27, 61, 77, 79, 83, 87
- Jeera-sona, 15, 34, 36, 38, 40, 53, 61, 77, 83, 87
- Jhilpanjari, 12, 15, 27
- Jiri, 8, 9, 13, 27, 34, 37, 40, 44, 52, 61, 77, 83, 87, 112, 115, 116, 121, 126, 127, 129, 132
- Joha*, 8, 108

**K**

- Kagisali, 13, 15, 34, 36, 37, 39–41, 52, 61, 77, 83, 87, 107, 112, 116, 117, 119, 121, 123, 126, 130
- Kala bhat, 8, 9, 13, 27, 34, 37, 39, 40, 42, 52, 61, 72, 75, 77, 83, 86, 87, 112, 115, 116, 119, 127, 129, 132
- Kala Krishna, 13
- Kalajeera, 12, 15, 27, 61, 75, 77, 83, 87
- Kalajoha, 2, 57, 107
- Kalakrishna, 15, 27, 61, 75, 77, 81, 83, 87, 91, 93, 113, 116, 117, 119, 122, 124, 125, 127, 129, 132
- Kalanamak, 1, 2, 8, 12, 15, 27, 34, 36, 38, 40, 41, 48, 49, 53, 57, 61, 77, 79, 81, 83, 87, 91, 92, 107, 108, 113, 115, 116, 119, 120, 122, 123, 125–127, 129, 132
- Kalanamak-3119, 15, 27
- Kalanamak-3131, 15, 27
- Kali kajari, 15, 34, 36, 38, 40–42, 44, 53
- Kali kumud, 9, 13, 27, 34, 37, 40, 44, 48, 52, 53, 60, 61, 66–67, 69, 70, 72, 75, 77, 81, 83, 87, 112, 115, 116, 127, 129, 130, 132
- Kaligajvili, 13, 15, 34, 36, 37, 40, 44, 52, 61, 77, 83, 88, 112, 115–117, 119, 122–124, 127, 129, 131, 132
- Kalsal, 8, 9, 13, 27, 34, 37, 40, 42, 49, 52, 61, 75, 77, 81, 83, 88, 112, 115, 116, 121, 126, 127, 129, 132
- Kamavatya, 8, 11, 13, 27, 34, 37, 40, 42, 52, 58, 60, 61, 63, 69, 70, 75, 77, 83, 88, 112, 115, 116, 120, 121, 127, 129, 132
- Kamod, 8, 9, 12, 13, 27, 34, 37, 40, 49, 52, 60, 61, 66, 69–71, 77, 83, 88, 112, 115, 116, 121, 127, 129, 132
- Kanakjeer, 12, 15, 27, 61, 75, 77, 83, 88
- Karjat rice research station, Karjat, 9, 62
- Karnataka, 4, 7–24, 33, 34, 36, 38, 39, 41, 44, 60–62, 67, 72, 79–81, 93, 107, 109, 111–113, 115, 117, 119, 120
- Katarani, 8, 107
- Kate chinoor, 8, 9, 13, 27, 34, 36, 37, 40, 48, 49, 52, 61, 77, 79, 83, 88, 112, 115–117, 119, 127, 129, 132
- Kernal local, 61, 77, 79, 81, 83, 88, 113, 115–117, 120, 127–129, 131, 132
- Ketone, 2, 75, 86–90
- Khadkya, 8, 11, 13, 27, 34, 37, 40, 42, 44, 49, 52, 60, 61, 67, 69, 70, 75, 77, 81, 83, 86, 88, 112, 115, 116, 120, 121, 123, 126, 127, 129, 132
- Khao Dawk Mali 105 (KDML), 1, 12
- Kolam types, 66, 68, 70
- Kolamb, 8, 13, 34, 36, 38, 40–42, 49, 53, 61, 72, 77, 79, 83, 88, 113, 115–117, 122, 124, 125, 127, 129, 132
- Kondhekar chinoor, 8, 9, 13, 27, 34, 36, 37, 40, 48, 49, 52, 61, 75, 77, 83, 88, 112, 116, 117, 119, 127, 129, 132
- Kothmbiri, 61, 77, 83, 88, 113, 116, 127, 129, 132
- Kothmirsal, 8, 9, 13, 27, 34, 37, 40–42, 44, 48, 52, 60, 61, 69, 70, 72, 75, 77, 79, 83, 88, 112, 115, 116, 121, 123, 127, 129, 132
- Krishnasal, 11, 12
- Kumud, 9, 11, 13, 27, 34, 36, 37, 40, 42, 44, 49, 52, 61, 75, 77, 83, 88, 112, 115–117, 122–124, 127, 129, 132

**L**

- Lal bhat, 8, 11, 13, 27, 34, 36, 37, 40, 41, 48, 52, 53, 61, 77, 81, 84, 88
- Lal dodki, 8, 11, 13, 27, 34, 37, 40–42, 48, 52, 60, 61, 67, 69, 70, 75, 77, 81, 84, 88, 112, 116, 117, 119, 120, 126, 127, 129, 132
- Lalu, 12, 15, 27, 61, 77, 84, 88
- Lemma and palea, 9, 11, 14, 24, 27, 28

**M**

- Maharashtra, 1, 2, 4, 7–24, 33, 34, 36, 38, 39, 41, 44, 57, 59–62, 66, 72, 79–81, 93, 107, 108, 111–113, 115, 117, 119, 120, 126, 131
- Maillard flavor, 3
- Makarand, 8, 9, 13, 27, 42, 44, 61, 77, 81, 84, 88
- Manila, 8, 13, 34, 38–40, 42, 53, 59, 61, 66, 67, 69, 70, 75, 77, 84, 88, 113, 115–117, 122, 124, 125, 127, 129, 132
- Marker assisted selection (MAS), 4, 109, 111, 128, 130, 131, 133
- Marketed rice samples, 60, 68–69
- Matrix, 58, 63, 113, 115, 121–125
- Medhini sanna bhatta, 13, 15, 34, 37, 40, 42, 48, 52, 53, 112, 115, 116
- Microsatellite alleles, 128, 130
- Microsatellite markers, 108, 109, 119
- Mugad sugandha, 15, 61, 77, 81, 84, 88
- Mysore mallige, 13, 15, 34, 37, 40, 42, 52
- Mysore sanna, 13, 15, 34, 36, 37, 40, 48, 52, 61, 78, 84, 88, 112, 115–117, 119, 126–130, 132

**N**

- Nashik district, 12, 66
- National Bureau of Plant Genetic Resources (NBPGR), 7
- National Seed Corporation Ltd., New Delhi, 9, 13, 62, 113
- Nonanal, 67, 68, 75, 80–82, 91, 92
- Nonanoic acid, 62, 86, 89, 90, 101
- North-western foot hills of Himalayas, 107

**O**

- Octanal, 2, 62, 67, 75, 80–82, 86, 89–93, 96
- 1-Octen-3-ol, 2, 62, 75, 80, 86, 87, 89–93
- Odor threshold value, 57, 62, 67, 70, 91–93
- Oryza glaberrima*, 1, 111
- Os2AP*, 3

**P**

- Pakhe bhat, 15, 27, 34, 38, 40, 42, 53, 61, 78, 84, 88
- Pakistan basmati, 15, 34, 36, 38, 40, 41, 53, 61, 78, 81, 84, 88, 113, 116, 117, 127–129, 132
- Pandanus amaryllifolius*, 3, 60
- Parabhani chinoor, 8, 9, 13, 27, 34, 36, 37, 40, 41, 48, 49, 52, 53, 61, 75, 78, 84, 88
- Parag 401, 11
- Parbhatjira, 15, 27

Pawana, 11, 15, 27, 61, 78, 84, 88  
 Pentanal, 62, 67, 75, 80–82, 89–92, 98  
 Pentanoic acid, 2  
 2-Phenylethanol, 62, 75, 76, 79, 80, 90–92  
 Phule maval, 11  
 Phule radha, 15, 61, 72, 78, 84, 88  
 Physicochemical characteristics, 2, 31  
 Pimpudibasa, 12, 61, 78, 84, 88  
 PKV-HMT, 11  
 PKV-Makarand, 11  
 Polymerase chain reaction (PCR), 4, 107  
 Polymorphism information content (PIC), 114, 115, 117, 128, 131  
 Prabhatjeera, 12, 61, 75, 78, 84, 88  
 Prabhavati, 11  
 Principle component analysis (PCA), 60, 62, 70, 71, 90, 91  
 PTFE silicon septa, 59  
 Pubescence, 9, 11, 14, 24, 27, 28  
 Pusa 44, 15  
 Pusa 1121, 111, 133  
 Pusa basmati, 13, 15, 27, 34, 36, 38–42, 44, 48, 53, 61, 72, 78, 79, 81, 84, 86, 88, 113, 115–117, 119, 127–129, 132  
 Pusa sugandha, 8, 13, 15, 27, 61, 78, 84, 88  
 Pusa sugandha 5 (P-2511), 15, 27  
 Pyridine, 2  
 Pyrrolidone, 2

## Q

Quantitative trait locus (QTL) for grain length, 111, 131

## R

Raibhog, 8, 11, 13, 27, 34, 37, 40, 42, 48, 49, 52, 53, 60, 61, 67, 69–71, 75, 78, 81, 84, 88, 112, 115, 116, 120, 121, 123, 127, 129, 132  
 Randhupagal, 2, 57, 107  
 Random amplified polymorphic DNA (RAPD), 4, 108, 119, 120  
 Ratibhog, 34, 38, 40, 44, 53, 61, 78, 81, 84, 88  
 RDN local, 15, 27, 61, 78, 84, 88  
 RDN scented, 15, 27, 61, 78, 84, 88  
 Restriction fragment length polymorphism (RFLP), 3, 4, 107–109, 111  
 Rice Research Station, Mugad, 9, 62, 111, 112  
 Rice Research Station, Shindevahi, 9

## S

Sanna bili bhatta, 13, 15, 34, 36–38, 40, 41, 52, 78, 84, 88, 112, 116, 117, 119, 126, 130  
 Shakarchini, 2, 8, 107  
 Shrabanmasi, 15, 27, 61, 78, 84, 88  
 Shrikamal, 13, 15, 27, 34, 38, 40–42, 44, 48, 49, 53  
 Shrikant, 15, 27, 34, 38–40, 49, 53  
 Shyamjeer, 12, 15, 27, 61, 78, 81, 85, 88, 113, 115, 116, 119, 122, 123, 125, 127, 129, 132  
 Simple sequence repeats (SSRs), 4, 108, 110, 133  
 Single nucleotide polymorphism (SNP), 109, 130, 133

Single tube allele specific amplification (ASA) assay, 109  
 Solid-phase micro-extraction (SPME), 57–60, 62–64, 72, 74  
 Sonsali, 15, 61, 72, 78, 81, 85, 86, 88  
 Splitless mode, 59  
 SPME fiber, 58–60, 64  
 Standard addition approach, 60, 62  
 Starch synthase, 110  
 Sugandha, 11  
 Starch-branching and debranching enzyme, 110  
 Super basmati, 15, 27, 61, 78, 79, 81, 85, 86, 88

## T

Tamsal, 8, 11, 13, 27, 34, 37, 40, 42, 49, 52, 61, 78, 81, 85, 88, 126, 127, 129, 132  
 Taraori basmati, 15, 27  
 Temperature of extraction, 59, 64  
 1-Tetradecene, 62, 75, 80, 86, 87, 89–92  
 Traditional basmati, 1, 108, 117, 119, 120  
 Trans-2-nonenal, 62, 75, 80–82, 86, 90–92  
 Trans-2-octenal, 75, 80–82, 86, 89–92  
 Trans-3-octen-2-one, 62, 75, 80, 86, 87, 89–92  
 Tulshimanjula, 15, 27, 34, 38, 40, 44, 53, 61, 75, 78, 85, 88  
 Tulsi local, 15, 34, 38, 40, 41, 48, 53  
 Tulsiamrit, 12, 49, 61, 78, 79, 85, 88  
 Tulsiganthi, 15, 27  
 Tulsikanti, 61, 78, 85, 88

## U

UPGMA analysis, 108, 115  
 UPGMA dendrogram, 118

## V

Validation of allele (RM 431) for grain length, 115, 131–133  
 Validation of aroma allele, 126–133  
*Vallis glabra*, 58  
 Vanillin, 60, 62, 67, 68, 70, 75, 76, 79–81, 90–93, 95  
 Vasane sanna bhatta, 13, 15, 34, 36, 37, 40, 52, 61, 78, 85, 89, 112, 115, 116, 119, 130  
 Velchi, 8, 9, 11, 13, 27, 34, 37, 40, 41, 44, 52, 61, 78, 85, 89, 112, 116, 117, 119, 121, 123, 126, 127, 129, 131, 132  
 Velkat, 15, 27, 34, 38–42, 44, 53, 61, 78, 85, 86, 89  
 4 Vinyl guaiacol, 62, 75–78, 80, 81, 90–93  
 4 Vinyl phenol, 62, 67, 75–78, 80, 81, 90–93  
 Vishnubhog, 12, 15, 27

## W

Waxy rice, 110, 128  
*Wx* gene, 110, 128  
*Wx* microsatellites (*Wx*-SSR), 110, 111, 115, 128–131, 133  
*Wx* mRNA, 110  
*Wx* pre-mRNA, 110