

**S4 Table. Mesophyll cell characters of *Oryza* species.**

MC parameters are quantified examining at least 3 different sections per leaf and 10 leaves per species (N = 30). Values are presented as the average  $\pm$  SD. All traits show significant ( $P < 0.0001$ ) difference among different wild rice.

Genome	<i>Oryza</i> species	IRGC accession number	Mesophyll cell number (MCN***, count)	Mesophyll cell length (MCL***, $\mu\text{m}$ )	Mesophyll cell height (MCH***, $\mu\text{m}$ )	Mesophyll cell width (MCW***, $\mu\text{m}$ )	Mesophyll cell lobing (LB <sub>MC</sub> ***, ratio)
KKLL	<i>O. coarctata</i>	104502	4.00 $\pm$ 0.7 (j)	21.27 $\pm$ 2.6 (j)	14.49 $\pm$ 2.4 (cd)	7.74 $\pm$ 0.8 (cdef)	1.24 $\pm$ 0.1 (g)
HHKK	<i>O. schlechteri</i>	82047	6.00 $\pm$ 0.5 (e)	15.02 $\pm$ 3.3 (l)	10.51 $\pm$ 1.6 (ij)	9.78 $\pm$ 1.9 (c)	1.01 $\pm$ 0.03 (h)
HHJJ	<i>O. longiglumis</i>	105148	6.5 $\pm$ 0.6 (cd)	13.58 $\pm$ 2.3 (l)	10.07 $\pm$ 1.7 (j)	6.62 $\pm$ 1 (hijkl)	1.08 $\pm$ 0.1 (h)
HHJJ	<i>O. ridleyi</i>	100821	6.00 $\pm$ 0.7 (de)	21.62 $\pm$ 4.09 (hij)	13.72 $\pm$ 2.7 (ef)	7.70 $\pm$ 1.2 (cdef)	1.10 $\pm$ 0.1 (h)
GG	<i>O. meyeriana</i>	89241	7.42 $\pm$ 1.3 (a)	17.01 $\pm$ 2.4 (k)	15.07 $\pm$ 3.2 (d)	12.77 $\pm$ 3.1 (a)	1.07 $\pm$ 0.08 (h)
GG	<i>O. granulata</i>	102118	5.40 $\pm$ 0.5 (ghi)	12.44 $\pm$ 1.8 (l)	8.46 $\pm$ 5.09 (k)	10.9 $\pm$ 2.02 (b)	1 $\pm$ 0.08 (h)
FF	<i>O. brachyantha</i>	101232	6.20 $\pm$ 0.8 (de)	14.23 $\pm$ 3.8 (l)	11.02 $\pm$ 2.2 (hij)	7.24 $\pm$ 0.7 (efghij)	1.31 $\pm$ 0.1 (efg)
EE	<i>O. australiensis</i>	100882	5.4 $\pm$ 0.5 (hi)	24.50 $\pm$ 4.7 (efgh)	11.43 $\pm$ 1.9 (ij)	5.82 $\pm$ 0.6 (klmn)	1.54 $\pm$ 0.1 (bcd)
CCDD	<i>O. grandiglumis</i>	106241	4.53 $\pm$ 0.6 (j)	27.45 $\pm$ 4.5 (d)	15.27 $\pm$ 1.8 (cd)	6.63 $\pm$ 0.9 (jklm)	1.46 $\pm$ 0.1 (bcde)
CCDD	<i>O. latifolia</i>	105173	5.77 $\pm$ 0.6 (ef)	30.10 $\pm$ 4.3 (cd)	17.36 $\pm$ 1.9 (bc)	7.18 $\pm$ 0.6 (fghij)	1.36 $\pm$ 0.02 (efg)
CCDD	<i>O. alta</i>	105143	5.48 $\pm$ 0.7 (i)	36.98 $\pm$ 7.38 (a)	19.34 $\pm$ 3.6 (a)	8.44 $\pm$ 0.7 (cd)	1.49 $\pm$ 0.1 (cdef)
CC	<i>O. rhizomatis</i>	105659	6.53 $\pm$ 0.5 (c)	22.70 $\pm$ 3.7 (ij)	12.36 $\pm$ 1.5 (ghi)	7.37 $\pm$ 1.2 (defg)	1.43 $\pm$ 0.1 (cdef)
CC	<i>O. officinalis</i>	100896	5.31 $\pm$ 0.7 (i)	20.37 $\pm$ 4.07 (j)	12.70 $\pm$ 1.9 (efg)	4.9 $\pm$ 0.7 (mn)	1.39 $\pm$ 0.1 (cdef)
CC	<i>O. eichingeri</i>	101422	5.73 $\pm$ 0.5 (fgh)	21.60 $\pm$ 4.1 (j)	13.21 $\pm$ 1.3 (d)	7.33 $\pm$ 0.5 (efghi)	1.39 $\pm$ 0.09 (defg)
BBCC	<i>O. minuta</i>	101141	4.00 $\pm$ 0.7 (j)	24.74 $\pm$ 1.2 (e)	12.63 $\pm$ 2.07 (fghi)	10.19 $\pm$ 0.9 (b)	1.54 $\pm$ 0.2 (b)
BB	<i>O. punctata</i>	105690	6.11 $\pm$ 0.3 (e)	22.49 $\pm$ 4.08 (fghij)	12.07 $\pm$ 1.6 (fghi)	7.51 $\pm$ 0.8 (efghi)	1.33 $\pm$ 0.09 (fg)
AA	<i>O. glumaepatula</i>	106242	6.85 $\pm$ 0.4 (ab)	31.24 $\pm$ 4.7 (b)	15.89 $\pm$ 1.6 (b)	5.62 $\pm$ 0.8 (lmn)	1.51 $\pm$ 0.1 (bc)
AA	<i>O. longistaminata</i>	110404	6.50 $\pm$ 0.7 (cd)	24.88 $\pm$ 5.1 (ef)	13.12 $\pm$ 2.6 (efghi)	7.97 $\pm$ 0.7 (cdef)	1.48 $\pm$ 0.1 (cdef)
AA	<i>O. rufipogon</i>	106424	7.37 $\pm$ 0.7 (a)	23.07 $\pm$ 6.9 (ghij)	13.22 $\pm$ 1.6 (e)	6.6 $\pm$ 0.6 (defgh)	1.57 $\pm$ 0.1 (bc)
AA	<i>O. meridionalis</i>	105301	5.88 $\pm$ 0.5 (efg)	23.31 $\pm$ 3.6 (ef)	13.27 $\pm$ 1.6 (ef)	6.95 $\pm$ 0.6 (ijkl)	1.72 $\pm$ 0.1 (a)
AA	<i>O. barthii</i>	106017	7.16 $\pm$ 0.8 (ab)	30.81 $\pm$ 3.8 (bc)	12.63 $\pm$ 1.7 (efgh)	6.24 $\pm$ 1.2 (ijkl)	1.53 $\pm$ 0.1 (bc)
AA	<i>O. nivara</i>	80723	7.00 $\pm$ 0.2 (bc)	23.72 $\pm$ 2.9 (efghi)	12.51 $\pm$ 1.9 (efgh)	4.99 $\pm$ 0.8 (n)	1.60 $\pm$ 0.2 (b)
AA	<i>O. glaberrima</i>	103544	7.14 $\pm$ 0.2 (ab)	32.40 $\pm$ 6.4 (b)	12.01 $\pm$ 1.7 (fghi)	7.06 $\pm$ 0.7 (ghijk)	1.52 $\pm$ 0.1 (cdef)
AA	<i>O. sativa</i> cv IR64	IR64-21	6.60 $\pm$ 0.8 (bc)	23.87 $\pm$ 4.4 (efg)	12.54 $\pm$ 1.9 (efg)	7.80 $\pm$ 1.02 (cde)	1.56 $\pm$ 0.1 (bc)

\*\*\*Represents significant difference among the species for the trait at  $P < 0.001$ . Different letters suggest significant differences.