

Table S1 Reference conditions of sample digester

Step	Control temperature(℃)	Heating time (min)	incubation time(min)
1	120	5	5
2	150	5	10
3	190	5	20

Table S2 Contents of 15 individual amino acids in Chinese jujubes from different categories.

Category	aspartate	threonine	serine	glutamate	proline	glycine	alanine	valine	isoleucine	leucine	tyrosine	phenylalanine	lysine	histidine	arginine
	(g/100g)	(g/100g)	(g/100g)	(g/100g)	(g/100g)	(g/100g)	(g/100g)	(g/100g),	(g/100g)	(g/100g)	(g/100g)	(g/100g)	(g/100g)	(g/100g)	(g/100g)
Henan	0.23±0.04c	0.030±0.00c	0.034±0.01b	0.058±0.00d	0.52±0.04c	0.028±0.00e	0.026±0.01c	0.030±0.00c	0.026±0.005bc	0.048±0.005c	0.028±0.005b	0.042±0.005d	0.040±0.000c	0.010±0.000c	0.020±0.000d
Huizao															
Hebei	0.24±0.04c	0.030±0.00c	0.030±0.00b	0.060±0.01d	0.40±0.04de	0.030±0.00de	0.030±0.00c	0.030±0.00c	0.020±0.000d	0.040±0.000d	0.020±0.000c	0.038±0.005d	0.038±0.004c	0.012±0.004c	0.020±0.000d
Jinsixiaozao															
Shanxi	0.27±0.01bc	0.030±0.00c	0.036±0.01b	0.062±0.00d	0.33±0.03e	0.030±0.00de	0.036±0.01b	0.040±0.00b	0.022±0.004cd	0.048±0.005c	0.034±0.009ab	0.048±0.005c	0.042±0.004c	0.018±0.004b	0.040±0.007b
Hupingzao															
Shaanxi	0.25±0.14c	0.030±0.00c	0.038±0.01b	0.065±0.01cd	0.56±0.05c	0.035±0.01cd	0.040±0.00b	0.040±0.00b	0.030±0.000b	0.053±0.005c	0.040±0.000a	0.050±0.000bc	0.048±0.005b	0.020±0.000ab	0.025±0.006d
Xiangzao															
Shaanxi	0.23±0.02c	0.034±0.01c	0.034±0.01b	0.074±0.01c	0.43±0.02d	0.038±0.00c	0.038±0.00b	0.040±0.00b	0.030±0.000b	0.060±0.000b	0.040±0.000a	0.050±0.000bc	0.050±0.000b	0.020±0.000ab	0.054±0.005a
Tanzao															
Xinjiang	0.44±0.03a	0.053±0.01a	0.053±0.01a	0.087±0.01b	0.71±0.08b	0.050±0.00a	0.048±0.00a	0.055±0.01a	0.037±0.005a	0.070±0.000a	0.035±0.005a	0.057±0.005a	0.058±0.004a	0.025±0.005a	0.035±0.005bc
Junzao															
Region	0.33±0.07b	0.047±0.01b	0.050±0.01a	0.098±0.01a	0.85±0.12a	0.045±0.01b	0.047±0.01a	0.053±0.01a	0.037±0.005a	0.068±0.008a	0.038±0.004a	0.055±0.005ab	0.050±0.006b	0.023±0.005ab	0.032±0.004c

Table S3 Characteristics of 31 quality indicators of Chinese jujubes.

Quality parameter	Mean	Range	Standard deviation	CV (%) ^a
soluble sugar (%)	28.13	18.10-40.40	7.92	28.16
ascorbic acid (mg/100g)	171.22	19.00-357.00	113.61	66.35
fresh mass(g)	13.68	5.49-31.25	6.89	50.37
shape ratio	1.37	0.73-1.75	0.17	12.69
edible rate(%)	94.02	91.71-96.41	1.27	1.35
moisture content(%)	57.41	31.70-71.50	12.97	22.59
Na(mg/kg)	100.53	2.90-519.70	135.65	134.93
Mg(mg/kg)	244.56	133.00-536.00	93.27	38.14
K(mg/kg)	4225.50	1918.00-9275.00	1954.22	46.25
Mn(mg/kg)	2.23	1.20-3.40	0.50	22.22
Fe(mg/kg)	7.64	2.80-21.00	4.80	62.86
Cu(mg/kg)	1.27	0.57-2.30	0.39	30.96
Zn(mg/kg)	2.94	1.60-4.20	0.71	23.98
dietary fiber(%)	6.08	4.51-6.88	0.69	11.39
cAMP (mg/kg)	87.87	22.66-246.43	63.15	71.86
aspartate(g/100g)	0.29	0.030-0.49	0.095	32.61
threonine (g/100g)	0.037	0.030-0.060	0.010	26.96
serine (g/100g)	0.040	0.030-0.060	0.010	26.05
glutamate(g/100g)	0.073	0.050-0.11	0.017	22.59
proline (g/100g)	0.56	0.29-0.97	0.19	34.03
glycine (g/100g)	0.037	0.020-0.050	0.0088	23.71
alanine (g/100g)	0.038	0.020-0.050	0.0088	22.92
valine (g/100g)	0.042	0.030-0.060	0.010	24.75
isoleucine(g/100g)	0.029	0.020-0.040	0.0073	25.07
leucine(g/100g)	0.056	0.040-0.080	0.012	20.55
tyrosine(g/100g)	0.034	0.020-0.040	0.0080	23.75
phenylalanine(g/100g)	0.049	0.030-0.060	0.0075	15.28
lysine(g/100g)	0.047	0.030-0.060	0.0079	16.76
histidine(g/100g)	0.019	0.010-0.030	0.0064	34.35
arginine(g/100g)	0.033	0.020-0.060	0.012	37.05
total amino acid (mg/100g)	1.38	0.97-2.07	0.34	24.74

^b "CV" represents "coefficient of variation"

Table S4 The scores and ranking of Chinese jujubes of different categories.

categories	PC score					Synthesis score	Ranking
	PC1	PC 2	PC 3	PC 4	PC 5		
Henan Huizao1	-3.43	-1.78	-1.10	-1.01	0.95	-2.64	28
Henan Huizao2	-4.83	-2.87	-1.72	-0.08	0.91	-3.72	36
Henan Huizao3	-3.64	-1.92	-1.16	-0.97	1.21	-2.79	29
Henan Huizao4	-4.44	-1.68	-1.25	-1.17	0.97	-3.32	32
Henan Huizao5	-3.02	-0.79	-1.54	-2.35	1.23	-2.34	27
Hebei Jinsixiaozao1	-4.99	-1.90	-1.01	0.80	-1.46	-3.68	35
Hebei Jinsixiaozao2	-4.65	-0.50	-1.10	-0.10	-0.98	-3.30	31
Hebei Jinsixiaozao3	-4.95	-1.92	-0.39	0.59	-0.17	-3.56	34
Hebei Jinsixiaozao4	-3.97	-1.47	-0.31	1.21	-0.75	-2.83	30
Hebei Jinsixiaozao5	-4.67	-1.95	-0.45	1.27	-0.58	-3.36	33
Shanxi Hupingzao1	-2.17	1.06	-0.48	2.89	0.12	-1.14	23
Shanxi Hupingzao2	-2.12	2.14	0.52	0.97	-0.63	-1.03	22
Shanxi Hupingzao3	-2.83	2.05	0.76	1.37	-0.70	-1.48	25
Shanxi Hupingzao4	-2.98	1.88	-0.58	-0.29	-1.20	-1.85	26
Shanxi Hupingzao5	-1.81	2.07	0.56	-0.03	-0.38	-0.89	21
Shaanxi Xiangzao1	-1.81	1.32	0.57	-2.19	-1.25	-1.17	24
Shaanxi Xiangzao2	-1.47	1.19	1.47	-2.42	-0.38	-0.86	20
Shaanxi Xiangzao3	-1.07	1.17	0.89	-1.59	-0.28	-0.59	17
Shaanxi Xiangzao4	-1.30	2.21	0.51	-2.04	-0.49	-0.67	18
Shaanxi Tanzao1	-1.00	1.04	2.13	1.27	1.92	-0.17	14
Shaanxi Tanzao2	-1.15	0.39	2.42	2.12	2.03	-0.27	15
Shaanxi Tanzao3	-0.81	0.83	1.44	1.08	2.16	-0.13	13
Shaanxi Tanzao4	-1.18	2.06	1.08	1.00	1.27	-0.28	16
Shaanxi Tanzao5	-1.78	2.61	2.76	-1.05	-0.35	-0.67	19
Xinjiang Junzao1	5.53	1.28	-1.90	-0.54	0.87	3.70	7
Xinjiang Junzao2	5.01	1.57	-1.74	-1.23	0.95	3.37	10
Xinjiang Junzao3	7.14	0.58	-2.18	0.27	1.23	4.72	1
Xinjiang Junzao4	6.25	2.22	-1.77	-0.45	-0.02	4.29	2
Xinjiang Junzao5	5.16	1.60	-2.17	1.16	-0.42	3.53	9
Xinjiang Junzao6	5.33	2.03	-2.33	1.79	-1.22	3.69	8
Xinjiang Huizao7	7.01	-4.43	0.74	1.08	0.05	4.18	4
Xinjiang Huizao1	6.93	-2.70	1.02	-0.87	0.49	4.28	3
Xinjiang Huizao2	2.83	-1.27	0.82	0.33	-1.91	1.71	11
Xinjiang Huizao3	2.63	-1.52	0.63	0.59	-2.52	1.51	12
Xinjiang Huizao4	6.00	-2.08	2.66	-0.53	-0.24	3.88	6
Xinjiang Huizao5	6.24	-2.53	2.20	-0.90	-0.40	3.90	5

— Henan Huizao — Hebei Jinsixiaozao — Shanxi Hupingzao — Shaanxi Xiangzao
— Shaanxi Tanzao — Xinjiang Junzao — Xinjiang Huizao

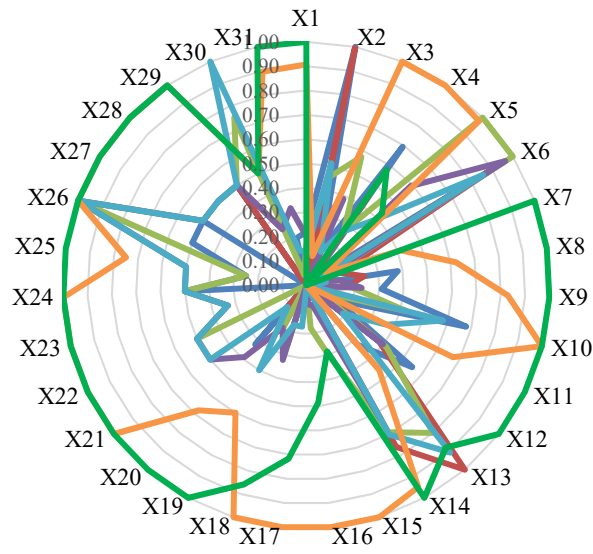


Figure S1. Correlations among 31 quality indicators of Chinese jujubes.

X1-X31: soluble sugar (%), ascorbic acid (mg/100g), fresh mass(g), shape ratio, edible rate (%), moisture content (%), Na (mg/kg), Mg (mg/kg), K (mg/kg), Mn (mg/kg), Fe (mg/kg), Cu(mg/kg), Zn(mg/kg), dietary fiber(%), cAMP (mg/kg), aspartate(g/100g), threonine (g/100g), serine (g/100g), glutamate (g/100g), proline (g/100g), glycine (g/100g), alanine (g/100g), valine (g/100g), isoleucine (g/100g), leucine (g/100g), tyrosine (g/100g), phenylalanine (g/100g), lysine (g/100g), histidine (g/100g), arginine (g/100g), total amino acid (mg/100g)