

Supplementary Table S1. Genomic information and identification of dirigent genes in major cucurbitaceous crops. (*Citrullus lanatus*, *Cucumis melo*, *Cucumis sativus*, *Cucurbita pepo*, *Cucurbita moschata* and *Lagenaria siceraria*).

Species name	No. of genes	Number of identified genes, Gene Bank accession number	Database/Source
<i>C. lanatus</i>	22	Cla003948, Cla007659, Cla010454, Cla020305, Cla020304, Cla020112, Cla020111, Cla003180, Cla003179, Cla007028, Cla019346, Cla021456, Cla021796, Cla019000, Cla005493, Cla001392, Cla001396, Cla000760, Cla004709, Cla019036, Cla008949, Cla017564	[38]
<i>C. melo</i>	22	MELO3C018823, MELO3C012606, MELO3C017279, MELO3C017251, MELO3C009601, MELO3C014668, MELO3C014667, MELO3C014666, MELO3C014665, MELO3C006347, MELO3C016325, MELO3C023825, MELO3C006716, MELO3C013719, MELO3C023824, MELO3C002419, MELO3C016328, MELO3C025485, MELO3C020795, MELO3C019288, MELO3C020796, MELO3C022433	[38]
<i>C. sativus</i>	17	Csa1G015640, Csa1G015830, Csa1G058130, Csa2G264050, Csa2G416780, Csa3G133310, Csa3G166330, Csa4G050220, Csa4G050240, Csa5G179750, Csa4G050250, Csa4G280610, Csa4G280620, Csa5G179740, Csa5G505160, Csa7G043060, Csa7G238990	[38]
<i>C. pepo</i>	20	Cp4.1LG01g04560, Cp4.1LG01g00150, Cp4.1LG01g10610, Cp4.1LG01g10620, Cp4.1LG03g00040, Cp4.1LG03g18290, Cp4.1LG05g05240, Cp4.1LG05g13180, Cp4.1LG05g13120, Cp4.1LG05g13130, Cp4.1LG08g05350, Cp4.1LG08g03040, Cp4.1LG09g09110, Cp4.1LG13g09560, Cp4.1LG14g02380, Cp4.1LG14g02290, Cp4.1LG15g07390, Cp4.1LG16g04310, Cp4.1LG16g09090, Cp4.1LG18g07240	[38]
<i>C. moschata</i>	19	CmoCh02G003170, CmoCh02G003180, CmoCh02G012440, CmoCh04G002460, CmoCh04G012860, CmoCh04G012870, CmoCh04G027380, CmoCh06G012820, CmoCh10G002740, CmoCh10G003000, CmoCh14G004020, CmoCh14G019100, CmoCh15G004330, CmoCh16G006220, CmoCh16G013330, CmoCh19G011360, CmoCh20G000440, CmoCh20G000450, CmoCh20G006340	[38]
<i>L. siceraria</i>	23	Lsi02G005580.1, Lsi02G016820.1, Lsi03G017580.1, Lsi04G008520.1, Lsi04G008530.1, Lsi05G015960.1, Lsi05G017990.1, Lsi06G013580.1, Lsi06G013920.1, Lsi07G009150.1, Lsi07G009170.1, Lsi07G009180.1, Lsi07G010490.1, Lsi07G014300.1, Lsi09G018340.1, Lsi10G001150.1, Lsi10G004700.1, Lsi10G004720.1, Lsi10G009810.1, Lsi10G009820.1, Lsi10G009830.1, Lsi10G009840.1, Lsi11G014430.1	[38]

Supplementary Table S2. Genomic information of the sequences used for phylogenetic tree.

Species	Name	Accession No
<i>Arabidopsis thaliana</i>	AtDIR1	At5g42510
	AtDIR2	At5g42500
	AtDIR3	At5g49040
	AtDIR4	At2g21110
	AtDIR5	At1g64160
	AtDIR6	At4g23690
	AtDIR7	At3g13650
	AtDIR8	At3g13662
	AtDIR9	At2g39430
	AtDIR10	At2g28670
	AtDIR11	At1g22900
	AtDIR12	At4g11180
	AtDIR13	At4g11190
	AtDIR14	At4g11210
	AtDIR15	At4g38700
	AtDIR16	At3g24020
	AtDIR17	At3g58090
	AtDIR18	At4g13580
	AtDIR19	At1g58170
	AtDIR20	At1g55210
	AtDIR21	At1g65870
	AtDIR22	At3g13660
	AtDIR23	At2g21100
	AtDIR24	At3g55230
	AtDIR25	At1g07730
<i>Forsythia intermedia</i>	FiDIR1	AAF25357
<i>Gossypium bardadense</i>	GbDIR1	AAS73001
	GbDIR2	AA44415
<i>Hordeum vulgare</i>	HvDIR1	AAA87042
<i>Oryza sativa</i>	OsDIR8	BAB89617
<i>Picea sitchensis</i>	PsDIR23	ABR27719
	PsDIR28	ABR27724
<i>Schisandra chinensis</i>	ScDIR1	ADR30610
<i>Sesamum indicum</i>	SiDIR1	AAT11124
<i>Tamarix androssowii</i>	TanDIR1	ABE73781
<i>Triticum aestivum</i>	TaDIR1	AAC49284
<i>Tsuga heterophylla</i>	ThDIR1	AAF25367
<i>Zea mays</i>	ZmDIR1	AAF71261
<i>LuDIR33</i>		
<i>LuDIR34</i>		
<i>LuDIR35</i>		
<i>LuDIR31</i>		
<i>LuDIR32</i>		

Supplementary Table S3. Specific primers of CIDIR genes used for qRT-PCR in this study

Gene ID	Forward primer (5'-3')	Reverse primer (5'-3')	Note
CIDIR01	CGCTACTGTGTTCCGGTGAAGTCAA	GACGGCGTCGGAGATAGCATT	qRT-PCR
CIDIR02	GCCTTGCTGCCTCCATTTCCAT	CGGTTATCGCATCGTCGGTCAC	qRT-PCR
CIDIR03	TGATTCTCACAACAGCCGCCATT	GCCAGCGTCAGAACCACCAAT	qRT-PCR
CIDIR04	ATCCATCCGCCAGAGTAG	AGTCGCCGATTGGTCGCCTAT	qRT-PCR
CIDIR05	TGTAGCATTCTCCTTCATCC	GCAACTCACGAACGGTAT	qRT-PCR
CIDIR06	ATCCATCCGCCAGAGTAG	GAGGTTGTTGTTGTTGTTGA	qRT-PCR
CIDIR07	TCACCTACCACCAAAGCAACAACAA	AGTCCCAAACAACCTCTCATCAACC	qRT-PCR
CIDIR08	TACGCTTCGACCGCACTGGAT	ACTACCACCGATGACCGACAAC	qRT-PCR
CIDIR09	CAGCCACTTCCGTCTCTA	GTATTCAACAACCGCATCC	qRT-PCR
CIDIR10	GCCATACCGTAGCATTGACCATCAT	ACCGCAAACCCACCAGCATT	qRT-PCR
CIDIR11	TGGTGCTCTCCCTACTGTGAATGG	CAACTCTGGTCCGGTGGTCAAG	qRT-PCR
CIDIR12	AATTCCTCCTCCTCTCCATCCTC	TACAGCCCTTTCCCGTCCGATT	qRT-PCR
CIDIR13	TCCAGTCAGGATTTGGGTACATTCG	CCACTCCTCCAATCACAGACAAC	qRT-PCR
CIDIR14	GCCACTGTGTTCCGGTGAAGTCAATA	TTCTCCGACGACTGGCATCTC	qRT-PCR
CIDIR15	AATGTCGTCGACGAGAATGAGTT	CGTTGTAGCCAATCACAGCATCCA	qRT-PCR
CIDIR16	TTCTCCTCCTCAACCTCACCATT	CCAACCAGGCAGCGAAGATGTT	qRT-PCR
CIDIR17	CCATTGTTGCAGCTCCAGAAGGT	GGTCAGCTCCGACGAAGTTGATG	qRT-PCR
CIDIR18	TCTCTTCTCCTCCTCCT	TGTTGTCCAGTGTGATTG	qRT-PCR
CIDIR19	GACTTCTTGACGAGCAGCCACAA	GGGATTTGAACCGCCGAGGATG	qRT-PCR
CIDIR20	GCAGACCTGTCCCTCTACATCCAA	TGAACGACGAACGAGCAAACGT	qRT-PCR
CIDIR21	CACCATCATCACCACCACATCAC	TGCAAGCCGTCGAAGCCAGA	qRT-PCR
CIDIR22	GCGGTGGTGATGACGGATGATC	TCTCTGTACGGCGGACATGAC	qRT-PCR
Actin	CCATGTATGTTGCCATCCAG	GGATAGCATGGGGTAGAGCA	