

Supplementary Table 1. Table of 103 *Chrysanthemum* germplasm resources

Name	Full name	Origin	Cultivated type
ADQL	<i>C. morifolium</i> 'An De Qiu Ling'	Japan	Traditional Chrysanthemum
BSZ	<i>C. morifolium</i> 'Bai Song Zhen'	China	Traditional Chrysanthemum
FSB	<i>C. morifolium</i> 'Fen Shi Ba'	China	Traditional Chrysanthemum
GHDB	<i>C. morifolium</i> 'Guo Hua Da Bao'	Japan	Traditional Chrysanthemum
GHYQD	<i>C. morifolium</i> 'Guo Hua Yin Qiang Da'	Japan	Traditional Chrysanthemum
JBYC	<i>C. morifolium</i> 'Jin Bo Yong Cui'	China	Traditional Chrysanthemum
JDFZ	<i>C. morifolium</i> 'Jue Dai Feng Zi'	China	Traditional Chrysanthemum
JJBX	<i>C. morifolium</i> 'Jin Ji Bao Xiao'	China	Traditional Chrysanthemum
JLXXZ	<i>C. morifolium</i> 'Jin Long Xian Xue Zhua'	China	Traditional Chrysanthemum
JXG	<i>C. morifolium</i> 'Jin Xia Guan'	China	Traditional Chrysanthemum
LSY	<i>C. morifolium</i> 'Lao Seng Yi'	China	Traditional Chrysanthemum
LYSZ	<i>C. morifolium</i> 'Lv Yi Shi Zhe'	China	Traditional Chrysanthemum
NCFD	<i>C. morifolium</i> 'Nan Chao Fen Dai'	China	Traditional Chrysanthemum
NJHD	<i>C. morifolium</i> 'Ni Jin Hu Die'	China	Traditional Chrysanthemum
PPC	<i>C. morifolium</i> 'Ping Pang Cheng'	China	Traditional Chrysanthemum
QXSC	<i>C. morifolium</i> 'Quan Xiang Shui Chang'	Japan	Traditional Chrysanthemum
WJWW	<i>C. morifolium</i> 'Wen Jing Wu Wei'	China	Traditional Chrysanthemum
YCBR	<i>C. morifolium</i> 'Yi Chen Bu Ran'	China	Traditional Chrysanthemum
YCBX	<i>C. morifolium</i> 'Yang Chun Bai Xue'	China	Traditional Chrysanthemum
YTYF	<i>C. morifolium</i> 'Yao Tai Yu Feng'	China	Traditional Chrysanthemum
ZPJD	<i>C. morifolium</i> 'Zi Pao Jin Dai'	China	Traditional Chrysanthemum
ZYFS	<i>C. morifolium</i> 'Zi Yan Fei Shuang'	China	Traditional Chrysanthemum
AFL	<i>C. morifolium</i> 'Avron'	Europe	Disbud Chrysanthemum
BAN	<i>C. morifolium</i> 'Anastasia'	Europe	Disbud Chrysanthemum
FuKashi	<i>C. morifolium</i> 'Fukashi'	Japan	Disbud Chrysanthemum
HNFB2	<i>C. morifolium</i> 'HNFB2'	Japan	Disbud Chrysanthemum
LAN	<i>C. morifolium</i> 'Anastasia Green'	Europe	Disbud Chrysanthemum
LPP	<i>C. morifolium</i> 'Healing'	Europe	Disbud Chrysanthemum
LSAN	<i>C. morifolium</i> 'Rossano'	Europe	Disbud Chrysanthemum
MB	<i>C. morifolium</i> 'MB'	Japan	Disbud Chrysanthemum
SM	<i>C. morifolium</i> 'SM'	Japan	Disbud Chrysanthemum
SMLB	<i>C. morifolium</i> 'Smola White'	Europe	Disbud Chrysanthemum
SMLH	<i>C. morifolium</i> 'Smola Yellow Impr'	Europe	Disbud Chrysanthemum
SMSZ-1	<i>C. morifolium</i> 'SMSZ-1'	China	Disbud Chrysanthemum
SMSZ-17	<i>C. morifolium</i> 'SMSZ-17'	China	Disbud Chrysanthemum
STLBLH	<i>C. morifolium</i> 'Stromboli Yellow'	Europe	Disbud Chrysanthemum
TM	<i>C. morifolium</i> 'TM'	Japan	Disbud Chrysanthemum
YTSK	<i>C. morifolium</i> 'Etrusko'	Europe	Disbud Chrysanthemum
YX	<i>C. morifolium</i> 'Youxiang'	Japan	Disbud Chrysanthemum
ZYFB	<i>C. morifolium</i> 'ZYFB'	China	Disbud Chrysanthemum
BLS	<i>C. morifolium</i> 'Belicia'	Europe	Spray Chrysanthemum (Spr)

BY	<i>C. morifolium</i> 'Bai Yu'	China	Spray Chrysanthemum (Spra)
FTK	<i>C. morifolium</i> 'Baltica Pink'	Europe	Spray Chrysanthemum (Spra)
HDT	<i>C. morifolium</i> 'Dante Red'	Europe	Spray Chrysanthemum (Spra)
KMC	<i>C. morifolium</i> 'Cayman Orange'	Europe	Spray Chrysanthemum (Spra)
LGL	<i>C. morifolium</i> 'Olive'	Europe	Spray Chrysanthemum (Spra)
QFC	<i>C. morifolium</i> 'Qiao Feng Che'	China	Spray Chrysanthemum (Spra)
RDSTH	<i>C. morifolium</i> 'Radost Yellow'	Europe	Spray Chrysanthemum (Spra)
TP	<i>C. morifolium</i> 'Tupai'	Europe	Spray Chrysanthemum (Spra)
VIP	<i>C. morifolium</i> 'VIP'	Europe	Spray Chrysanthemum (Spra)
XEWY	<i>C. morifolium</i> 'Silvia'	Europe	Spray Chrysanthemum (Spra)
XJLKZ	<i>C. morifolium</i> 'XJLKZ'	China	Spray Chrysanthemum (Spra)
ZY	<i>C. morifolium</i> 'Pink Rock Dark'	Europe	Spray Chrysanthemum (Spra)
2018-18	<i>C. morifolium</i> '2018-18'	China	Potted and ground-cover Chrysanthemum (PoGc)
2019-100	<i>C. morifolium</i> '2019-100'	China	Potted and ground-cover Chrysanthemum (PoGc)
2019—2	<i>C. morifolium</i> '2019-2'	China	Potted and ground-cover Chrysanthemum (PoGc)
2019-82	<i>C. morifolium</i> '2019-82'	China	Potted and ground-cover Chrysanthemum (PoGc)
2019-98	<i>C. morifolium</i> '2019-98'	China	Potted and ground-cover Chrysanthemum (PoGc)
2019-TG	<i>C. morifolium</i> '2019-TG'	China	Potted and ground-cover Chrysanthemum (PoGc)
BLQY	<i>C. morifolium</i> 'Bei Lin Qiu Yun'	China	Potted and ground-cover Chrysanthemum (PoGc)
BSDY	<i>C. morifolium</i> 'Ban Shen De Yu'	Japan	Potted and ground-cover Chrysanthemum (PoGc)
FKFX	<i>C. morifolium</i> 'Fu Kan Fan Xing'	China	Potted and ground-cover Chrysanthemum (PoGc)
GQZXJ	<i>C. morifolium</i> 'Guo Qing Zao Xiao Ju'	China	Potted and ground-cover Chrysanthemum (PoGc)
HLH	<i>C. morifolium</i> 'Han Lu Hong'	China	Potted and ground-cover Chrysanthemum (PoGc)
HONG7	<i>C. morifolium</i> 'Hong 7'	China	Potted and ground-cover Chrysanthemum (PoGc)
JZ	<i>C. morifolium</i> 'Jin Zun'	Europe	Potted and ground-cover Chrysanthemum (PoGc)
LY	<i>C. morifolium</i> 'Lian Yu'	China	Potted and ground-cover Chrysanthemum (PoGc)
mHLH	<i>C. morifolium</i> 'mHLH'	China	Potted and ground-cover Chrysanthemum (PoGc)
PBP	<i>C. morifolium</i> 'Pemba Purple'	Europe	Potted and ground-cover Chrysanthemum (PoGc)
PDDF	<i>C. morifolium</i> 'Pu Di Dan Fen'	China	Potted and ground-cover Chrysanthemum (PoGc)
QTSJ	<i>C. morifolium</i> 'Qing Tong Shui Jing'	Europe	Potted and ground-cover Chrysanthemum (PoGc)
SBJT	<i>C. morifolium</i> 'Shen Bi Ji Ta'	Europe	Potted and ground-cover Chrysanthemum (PoGc)
WKWX	<i>C. morifolium</i> 'Wo Kan Wan Xia'	China	Potted and ground-cover Chrysanthemum (PoGc)
WTCL	<i>C. morifolium</i> 'Wo Ting Chen Lu'	China	Potted and ground-cover Chrysanthemum (PoGc)
WXFT	<i>C. morifolium</i> 'Wei Xiang Fen Tuan'	China	Potted and ground-cover Chrysanthemum (PoGc)
XIAO HUANG	<i>C. morifolium</i> 'Xiao Huang'	China	Potted and ground-cover Chrysanthemum (PoGc)
XYQ	<i>C. morifolium</i> 'Xiao Yin Qiu'	China	Potted and ground-cover Chrysanthemum (PoGc)
YJHB	<i>C. morifolium</i> 'YJHB'	China	Potted and ground-cover Chrysanthemum (PoGc)
GFJ	Gui Fei Ju	China	Edible and Medicinal Chrysanthemum (EdMe)
WYHJ	Wu Yuan Huang Ju	China	Edible and Medicinal Chrysanthemum (EdMe)
Aro JD	<i>C. aromaticum</i>	China	Wild species
Cha YTHX	<i>C. charetii</i>	China	Wild species
Dic	<i>C. dichrum</i>	China	Wild species
Ind PDJ	<i>C. yantaiense</i>	China	Wild species

Ind SNYJZ	<i>C. indicum</i> - shennongjia	China	Wild species
Ind TZSYJ	<i>C. indicum</i> - Tianzhushan	China	Wild species
Ind WZ	<i>C. indicum</i> - Wenzhou	China	Wild species
Ind ZFDYJ	<i>C. indicum</i> - Zhifudao	China	Wild species
Ind JLLJ	<i>C. indicum</i> - Jilin	China	Wild species
Ind HSYJ-1	<i>C. indicum</i> - Huangshan	China	Wild species
KYVes	<i>C. vestitum</i> var. <i>latifolium</i>	China	Wild species
Lav MYGJ	<i>C. lavandulifolium</i> var. <i>tomentellum</i>	China	Wild species
Lon	<i>C. longibracteatum</i>	China	Wild species
NaK	<i>C. naktongense</i>	China	Wild species
Nan	<i>C. nankingense</i>	China	Wild species
Pot	<i>C. potentilloides</i>	China	Wild species
XNKH	<i>C. ornatum</i>	Japan	Wild species
XNKI	<i>C. yoshinaganthum</i>	Japan	Wild species
XNKK	<i>C. japonense</i>	Japan	Wild species
XNKN	<i>C. seticuspe</i>	Japan	Wild species
XNKP	<i>C. indicum</i> - Morotsuka	Japan	Wild species
XNKI	<i>C. indicum</i> - Makurazaki	Japan	Wild species
XYVes HN	<i>C. vestitum</i>	China	Wild species