

中国水生蔬菜品种资源

THE AQUATIC VEGETABLE CULTIVARS AND RESOURCES OF CHINA

主编 孔庆东
Chief Editor Kong Qingdong



湖北科学技术出版社
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孔庆东 1923年生,南京中央大学农学院毕业。武汉市蔬菜科学研究所名誉所长、教授级高级农艺师,工作期间主持建立国家种质武汉水生蔬菜资源圃。曾获得全国五一劳动奖章,所主持的“水生蔬菜种质资源的征集、评估与应用研究”课题获国家科技进步二等奖(1998)。

Kong Qingdong Born in 1923, graduated from Agricultural College of Central University in Nanjing. Professor and emeritus director of Wuhan Vegetable Research Institute. Under his chairing, "National Germplasm Wuhan Aquatic Vegetable Garden" had been set up. He was awarded "Medal of National May 1 Labor". The project "Aquatic Vegetable Resources Collection, Evaluation and Utilization Study", which chaired by him, won the 2nd National Prize for Science and Technology Progress in 1998.

主 编 孔庆东

副主编 赵有为 关佩聪 柯卫东 林处发

英 译 叶志彪 李汉霞

编 著 者 (以姓名笔划为序)

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序

水生蔬菜是一类长期在水田、池沼、低洼地栽培的蔬菜，在中国已有悠久的栽培历史。据考证，早在秦汉时期，蒲、菰（茭白）、莲、芡等已是人们喜食的蔬菜。《齐民要术》一书就较系统地介绍了多种水生蔬菜的种植方法，是中国历史上关于水生蔬菜种植技术的最早记载。

中国水生蔬菜种质资源十分丰富。据调查，全国在淡水中种植的主要有14大类，它们分属于14个科，而且许多种类起源于中国，是中国蔬菜种质资源宝库中的重要组成部分。就世界范围来说，中国许多特有的水生蔬菜资源早已传入日本、东南亚及欧、美各国栽培。在中国人的餐桌上，水生蔬菜历来以其清脆爽口的品质、独具特色的风味受到人们的喜爱。水生蔬菜大部分具有良好的医疗保健作用，有的还兼具极高的观赏价值。在当前农村种植结构调整中，在部分水田中种植水生蔬菜，或将水稻与水生蔬菜套种或换茬种植，或利用不适宜种粮的低洼地种植水生蔬菜，都取得了比较好的经济效益和生态效益，值得在类似地区进行推广或应用。水生蔬菜的开发利用是富裕农村、帮助农民脱贫致富的一个有效途径。我国有大面积的水田，如果因地制宜，适当种植一些水生蔬菜，不仅可以增加当地蔬菜鲜食品种，还可以加工制成各种绿色保健食品，运销全国各地，进一步出口创汇。所以说在广大农村中，发展水生蔬菜是大有作为的。

20世纪80年代，国家为妥善保存和利用水生蔬菜资源，在武汉市蔬菜科学研究所建立了国家种质武汉水生蔬菜资源圃，迄今已有20余年。该资源圃保存了从全国20个省、直辖市、自治区采集来的14大类1700余份品种资源。已取得了一批有价值的研究成果，并向全国各地推广，使资源圃不但成为中国水生蔬菜资源研究的基地，而且也成为新品种选育、开发利用和学术交流的基地。《中国水生蔬菜品种资源》一书是资源圃研究人员多年来征集、观察、研究的成果，并附有实物彩照。主编孔庆东教授从事蔬菜研究工作达50年，并亲手创建了国家水生蔬菜资源圃，现年近八旬，仍然为蔬菜科技发展和培养年轻工作者操劳，实令人敬佩。本书的出版发行，相信对广大蔬菜科技工作者、生产者及大专院校师生均有一定的参考价值，故愿向读者推荐，并乐为之序。



2001年4月3日

Preface

Aquatic vegetables, which cover all crop species growing in paddy fields, pools or lowlands, have a very long cultivating history in China. It has been proved that the Cattail, Wild-rice, Lotus and Gorgon fruit etc. were popular vegetables during the early Qin and Han dynasties. There was the earliest record in the book of *Qi Min Yao Shu* (Important Arts for the People's Welfare) in Chinese history, which gave a general introduction of the methods for aquatic vegetable cultivation.

The germplasm resources of aquatic vegetables is a plentiful in China. It has been investigated that there are mainly 14 fresh-water-plant classes all over the country and belong to 14 families respectively. Many of them are originated from China, and it is an essential part of Chinese plant germplasm resources treasury. As to the world wide, many particular aquatic vegetable resources in China have already spread to Japan, Southeast Asia and Occident. Aquatic vegetables are enjoyable for their crisp, tasty quality and special flavor. Most of them have acceptable value of healthy care, and also some of them have high appreciation value. During the current regulation of rural crop construction in China, ideal economic and ecological benefits have been achieved in some areas, when aquatic vegetables are grown instead of rice or interplanting rotation is applied on some paddy field. It is valuable to popularize in those similar areas. The exploitation and utilization of the aquatic vegetable are efficient paths to enrich countryside and relieve poverty towards well-off conditions for peasants. China possesses large amount of rice paddy, not only local fresh vegetable varieties can be increased but also varied green medical care foods can be processed when one batch of aquatic vegetables are applied in a year under local conditions. The products can be sent to the market over the country and even exported for earning foreign currency. It is prospective to develop aquatic vegetables in the widespread countryside.

To maintain and utilize the aquatic vegetables resources properly, National Germplasm Wuhan Aquatic Vegetable Garden was established in Wuhan Vegetable Research Institute in the 80's, 20th century. More than 1 700 assessments of resources belonging to the 14 classes have been conserved in this garden, which were collected from about 20 provinces, cities and municipalities. Some valuable achievements are spread to the whole country. Thus the garden becomes not only the research base of Chinese aquatic vegetable resources but also the base of new cultivar breeding, exploitation and utilization, and the base of scholarly communication as well. The book of Aquatic Vegetable Resources of China with many practical colorful photographs is the fruitful result to the research staff in the center after collection, investigation and study for many years. Professor Kong Qingdong, the editor in chief, devoted himself to the vegetable research for more than 50 years, and the establishment of the garden too. Professor Kong is quite admirable, he is working hard now for vegetable science and technology development and young researchers bringing up training though nearly 80 years old. I believe that the publishing of this book will be benefit to the vegetable researchers, farmers, teachers and students in the institutions. I am glad to recommend this book to all readers and preface for it.

He Kang

April 3, 2001

前言

本书中所写的水生蔬菜,包括莲藕、茭白、芋、水芹、薤菜、慈姑、菱、荸荠、芡、豆瓣菜、蒲菜、莼菜、茭蒿、海菜花14类。这些种类在中国水生蔬菜的生产消费方面占有一定地位,而且大多起源于中国,其栽培历史在2 000年以上。由于它们原来生活在不同层次的水体中,故在系统发育方面有相同的渊源。有些水生蔬菜的类型,由于环境条件的改变,也适应于半干旱栽培,但其组织结构、生物学特性尚保持某些水生植物的特点,仍应属于水生蔬菜之列。

中国地处温带、亚热带和热带地区,疆域辽阔,地貌丰富,各地生产的蔬菜种类资源多姿多态。中国东部、南部及西南部地区,水源充足,有众多的江河、湖泊、池沼和溪流,所以这一带的水生蔬菜种质资源特别丰富。又由于水体中的环境较陆地上稳定得多,即便在东北和西北较恶劣的条件下,只要有水源的地区,也常有水生蔬菜的踪迹。

武汉市居中得水,地处中国南北地理气候交界的过渡地带,具有宜于多种水生蔬菜生存的条件与环境,并有悠久的栽培历史与广大的种植面积。20世纪80年代中期,“国家种质武汉水生蔬菜资源圃”在武汉市蔬菜科学研究所建成。建圃前本所已开始这方面的工作。建圃后,本人又与圃中工作同志先后分赴20多个省(区)的百余县市征集并在圃中保存了水生蔬菜资源1 700余份材料,它们分属于14个科30个种或变种。所征集的资源中,有一部分是稀有或濒危的物种,应注意加以保护,有的材料又是很有生产价值的资源,从中培育出了一批优良品种(系)且已应用于广大农村。近年在国内农村种植结构调整中,水生蔬菜在种植业中的地位日益突出,对于优良的品种与优异的种质资源,人们较以前更为关注。现从所征集的资源 and 选育的品种中选出有代表性的材料460余份,附加图片及说明,编制成册(有少数材料是引自其他书籍或经有关专家提供),以供各方参考。并将12类水生蔬菜的组织器官电镜扫描照片,作为附录。

由于作者学识浅薄,观察与研究不够深入,书中可能存在一些疏漏之处。许多水生蔬菜资源丰富的地方,尚未能前往,以致有许多品种资源并未征集到圃。加之,当前资源研究工作进展迅速,许多新技术、新方法已被大量应用,而本书未能涉及,故迟迟未敢付印。然目前坊间,此类书籍尚属缺少,故先印出,以期能起到抛砖引玉的作用,希望得到各方指正后,俾使将来再予以修订补充。

农业部前部长何康先生在其任内,曾对“国家种质武汉水生蔬菜资源圃”的建立给予支持,这次又亲笔为本书作序。中国工程院院士方智远先生于百忙之中为本书作跋。在此对何康、方智远二位先生的关怀与鼓励,敬表感激之情。

本书在编制过程中,先后得到中国园艺学会理事长朱德蔚、副理事长李树德二位先生,中国农科院作物品种资源研究所方嘉禾、蔬菜花卉研究所戚春章、祝旅,中国科学院南京植物所余梦兰等四位研究员以及华中农业大学谢成章、张文邦、兰盛银,中国荷花研究中心王其超等教授的指导;本书的出版得到武汉市科委(现科技局)与武汉市农业局的赞助;本书英文部分得到华中农业大学叶志彪、李汉霞二位教授精心翻译,最后并承武汉市张学忙副市长鼎力赐助,才得以刊行。对以上诸位先生与各位领导的深情厚谊,在此谨致以诚挚的谢意!

孔庆东

于国家种质武汉水生蔬菜资源圃

2003年5月写

2004年12月补正

Foreword

This book is an introduction to the germplasm resources of aquatic vegetables including lotus, water bamboo, taro, water dropwort, water spinach, arrowhead, water chestnut, gordon euryale, water cress, common cattail, water shield and seleng wormwood. These species are dominant on the production and consumption of Chinese aquatic vegetables, moreover, most of them are originated from China, with cultivation history over 2 000 years. They may share the same origins on systematic development for the common ecosystem. They are similar with both tissue structure and requirements for environment. Some of them are still belonging to aquatic vegetables for their maintenance of tissue structure and biological characteristics though they acclimatized themselves to semi-arid conditions.

China locates on Temperate Zone, Subtropics and Tropics, with expansional territory and multifarious physiognomy, thus there are many vegetable species existing in different places. Relatively, there are much more kinds of aquatic vegetable germplasm in the regions of East, South and Southwest China because of abundant waters from many rivers, lakes, ponds and rivulets. Only if there is a water, aquatic vegetables could find their places in atrocious weather areas like Northeast and Northwest China, for the environment in water is much more stable.

The Wuhan city in Hubei province is situated in the crossing region of south and north geographical climate of China, with living circumstances suitable for various aquatic vegetables, and also with centuries-old cultivating history and large amount of planting area for them. In 1980's National Germplasm Wuhan Aquatic Vegetable Garden was set up in Wuhan Vegetable Research Institute. After this event, we continued our former work. We headed to more than 100 counties and cities over 20 provinces and municipalities, and collected and preserved more than 1 700 samples of the existing aquatic vegetable resources in China. They are belonging to 30 species and varieties in 14 families. Furthermore, we have successfully bred a passel of elit cultivars or breeding lines. During the current regulation of rural crop construction in China, the aquatic vegetable becomes more important in the crop planting. More attention was paid to those superior cultivars and accessions of germplasm. 460 samples of representative resources and bred cultivars have compiled in the book with their photographs and detailed explanations which could be used as a reference to the readers. (A few of the datas are cited from other books or provided by related experts). And the black-and-white photographs of tissue and organ for 12 families scanned by electron microscope were collected in Appendix I, while some characteristic and commendable cultivars found in many cities during the collection are edited into Appendix II, these cultivars show high relationship to their geographical environment and culture backgrounds. The appendixes may have some reference value to some researchers involved in this kind work.

Inevitably, mistakes may appear for insufficient investigation and study, as well as knowledge limitation, furthermore, many cultivars from some provinces with plentiful aquatic vegetable resources were ignored. What is more, the research on crop resources is advancing so rapidly, many new technologies applied today was not mentioned in this book. So I hesitate to send this manuscript to press at one time. However, as far as I know, it is short of such kind of book currently. Your pointing out of the mistakes in this book is sincerely waited, thus young colleagues can correct them and make up in the future.

Mr He Kang, the former Minister of Agriculture, has done the effort to establish National

Germplasm Wuhan Aquatic Vegetable Garden, and now prefaces this book. Mr Fang Zhiyuan, member of CAE, gave postscript of this book, so I liked to fully thank both Mr. He and Mr. Fang for the encouragement and support.

I liked to thank Mr Zhu Dewei and Mr Li Shude, the president and vice president of Chinese Horticulture Society, Mr Fang Jiahe from Germplasm Institute of CAAS, Mr Qi Chunzhang and Zhu Lü from Vegetable and Flower Institute of CAAS and Mrs She Menglan from Nanjing Botany Institute of CAAS, as well. Professors Xie Chengzhang, Zhang Wenbang and Lan Shengyin from Huazhong Agricultural University, Professor Wang Qichao for their assistance during compiling. The Scientific and Technology Commission of Wuhan to financial publication of this book. Finally I would thank professors Ye Zhibiao and Li Hanxia from Huazhong Agricultural University to assistant in Chinese to translate in English version. And many thanks to Deputy Mayor Mr. Zhang Xuemang with all the assistance of this book to publish. I would like to thank all of the professionals and leaders for their friendship.

Kong Qingdong

National Germplasm Wuhan Aquatic Vegetable Resources Garden

Wrote in May, 2003 and revised in December, 2004

编写说明

1. 每章品种资源的先后顺序,按省、直辖市、自治区自北向南次序安排。
2. 各品种特征描述,大部分系我们在国家种质武汉水生蔬菜资源圃中观察、调查所得,部分系原产地或原作者所提供。
3. 因每章对各种作物的栽培技术已作了一般介绍,故各品种资源介绍仅按原产地习惯作了简要介绍。
4. 凡属本书编写作者,姓名已列入编写人员名单,其文字部分不再一一注明,但图片部分仍分别注明(如×××图)。凡引自其他著作者的资料,本书分别予以注明(如×××)。
5. 本书彩图除署名作者外,其余均系孔庆东提供;黑白线描图除署名作者外,其余系蒋祖德提供。
6. 本中英文对照版较第一次中文版个别图片与文字有所订正。

Explantion

1. The sequence of cultivar resources presented in each chapter is in accordance with the provincial position from north to south.
2. In this book, the illustration materials of most cultivar resources were obtained from our firsthand observations in National Germplasm Wuhan Aquatic Vegetable Resources Garden of while those of the others were provided by agro-technicians from the resources native places.
3. In terms of cultivation techniques for each cultivar, only some native traditional methods are briefly introduced because there is an introduction to cultivation techniques for the crop in each chapter.
4. The book authors listed in the author list are not mentioned in the text, but the authors whose books or articles are partly cited in this book are mentioned as certain author(s) in corresponding places.
5. All color photos except those taken by Pro. Kong Qingdong are mentioned as certain photographer(s). All black-and-white pictures except those mentioned in this book were drawn by Pro. Jiang Zude.
6. This Chinese-English edition is a revision based largely on the 1st Chinese edition published by China Agriculture Press in 2004. Some textual errors in the 1st Chinese edition have been corrected and some photos have been replaced.

国家种质武汉水生蔬菜资源圃

National Germplasm Wuhan Aquatic Vegetable Garden



实验楼 Laboratory building



资源圃门廊 Porch of the garden



组织培养室 Tissue culture room



繁殖苗圃 Propagating nursery



资源圃鸟瞰 Bird view of the garden

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| 秭归田藕(37) | 来凤藕(37) | 八月炸(38) | 双槽藕(38) | 马口白莲(39) |
| 岳口白莲(39) | 糜城藕(40) | 大河塘藕(40) | 武植二号(41) | 籽莲二号(41) |
| 鄂莲一号(42) | 鄂莲二号(42) | 鄂莲三号(43) | 鄂莲四号(43) | 鄂莲五号(44) |
| 湘潭早藕(45) | 南平麻藕(45) | 炮筒子藕(46) | 益阳白莲(46) | 九溪红(47) |
| 湘莲一号(47) | 汉寿玉臂(48) | 寸三莲(48) | 海南洲藕(49) | 丝苗(49) |
| 肇庆藕(50) | 西川村藕(50) | 甲山藕(51) | 贵港藕(51) | 梧州藕(52) |
| 桂林藕(52) | 博白莲藕(53) | 海口藕(53) | 反背肘藕(54) | 丰都藕(54) |
| 南泉藕(55) | 走马羊藕(55) | 永川白花(56) | 思茅藕(56) | 江尾红花(57) |
| 呈贡藕(58) | 建水藕(58) | | | |

二、茭 白

- 1 概述(61)
- 2 来源及分布(61)
- 3 形态特征(61)
- 4 对环境条件的要求(62)
- 5 生长发育时期(62)
- 6 栽培技术(62)
- 7 品种资源分类(63)

【品种资源】

- | | | | | |
|-----------|----------|----------|-----------|-----------|
| 济南秋茭(67) | 汉中茭(67) | 蒋墅茭白(68) | 无锡中介茭(68) | 广益茭(69) |
| 两头早(69) | 刘潭茭(70) | 扬菱一号(70) | 淮安单季茭(71) | 菱荇早(71) |
| 苏州白种(72) | 苏州青种(72) | 小蜡台(73) | 中蜡台(73) | 大头青(74) |
| 群力茭(74) | 吴江茭(75) | 中秋茭(75) | 南京茭儿菜(76) | 孔丘茭白(76) |
| 宁波四九茭(77) | 美女茭(77) | 象牙茭(78) | 抗八月茭(79) | 梭子茭(79) |
| 杭州晚茭(80) | 骆驼桥茭(80) | 无为茭(81) | 杭州双季茭(81) | 蚂蚁茭(82) |
| 桐城茭(82) | 合肥茭(83) | 巢湖茭(83) | 十里香(84) | 金鸡坡茭(84) |
| 南平禾笋(85) | 安溪茭笋(85) | 西台茭(86) | 漳州单季茭(86) | 汉阳单季茭(87) |

黄湾茭(87)	古夫茭(88)	宜昌茭(88)	鄂茭二号(89)	屈原茭(90)
利川单季茭(90)	黄石茭(91)	长沙单季茭(91)	邵阳茭白(92)	三閤茭白(92)
软尾茭笋(93)	甲山茭(93)	草白笋(94)	坨笋(94)	重庆茭(95)
丰都一季茭(95)	遵义茭(96)	澄江茭(96)	勐遮茭(97)	元谋茭(97)
呈贡茭(98)	八街茭(98)			

三、芋

1 概述(101)	2 来源及分布(101)	3 形态特征(101)	4 对环境条件的要求(102)
5 栽培技术(102)	6 品种资源分类(102)		

【品种资源】

济南芋(105)	卧龙岗芋(105)	南京白禾芋(106)	南京红禾芋(106)	马山白芋(107)
湖州芋(107)	光芋(108)	沈家门芋芳(108)	绍兴白梗芋(109)	绍兴红梗芋(110)
杭州白梗芋(110)	奉化芋芳头(111)	樟树红芽芋(111)	安福红芽芋(112)	东乡红纹芋(112)
余干魁芋(113)	青禾芋(113)	观音芋(114)	安福乌脚芋(115)	合肥芋(115)
四季芋(116)	金沙芋(116)	安溪多头芋(117)	虎掌芋(117)	黄肉芋(118)
狗爪芋(119)	玖棕芋(119)	福州槟榔芋(120)	绵芋(121)	泉州槟榔芋(121)
江汉芋(122)	应城芋(122)	汉阳红禾芋(123)	潜江乌禾芋(123)	郭家坝红禾芋(124)
来凤红梗芋(124)	小港芋(125)	湖泗白禾芋(125)	屈原野芋(126)	沙市糯芋(126)
黄滩黏芋(127)	枣阳白禾芋(127)	荆门芋(128)	公安毛芋(128)	湘南白禾芋(129)
鸡婆芋(129)	祁阳槟榔芋(130)	沅江芋(130)	银芋(131)	青水芋(131)
马坝芋(132)	广州多子芋(132)	赤芽芋(133)	广东红柄芋(133)	揭阳多子芋(134)
海口红禾芋(134)	塔洋野芋(135)	三亚红梗芋(135)	柳江红芽芋(136)	梧州芋(136)
荔浦芋(137)	大堡红梗芋(138)	南泉芋(138)	达县红芽芋(139)	达县多子芋(139)
社坛芋(140)	石桥水芋(140)	走马羊旱芋(141)	惠水芋(141)	墨江甜芋(142)
建水芋(142)	昆明多子芋(143)	普洱紫芋(143)	花头芋(144)	勐海白梗芋(145)
红肉芋(145)				

四、水 薹

1 概述(149)	2 来源及分布(149)	3 形态特征(149)	4 对环境条件的要求(149)
5 栽培技术(水栽)(149)	6 品种资源分类(150)		

【品种资源】

桐城紫花(153)	安庆薹(153)	合肥薹(154)	吉安白花(154)	樟树竹叶菜(155)
吉安紫花(155)	金鸡坡薹(156)	抚州薹(156)	南平薹(157)	大管薹(157)
福州宽叶(158)	龙岩薹(158)	武昌薹(159)	枣阳红梗(159)	云梦绿梗(160)
仙桃紫梗(160)	秀林白花薹(161)	秀林紫花薹(161)	青梗大叶(162)	大鸡青(162)
剑叶(163)	白壳(163)	丝薹(164)	海南小叶(164)	海南中叶(165)
粉红小叶(165)	百色薹(166)	柳江白梗(166)	贵港薹(167)	麻村薹(167)
博白薹(168)	南江薹(168)	勐腊薹(169)	勐海薹(169)	罗梭江薹(170)
普洱红花薹(170)	墨江红梗薹(171)	景洪薹菜(171)		

五、水 芹

1 概述(175)	2 来源及分布(175)	3 形态特征(175)	4 对环境条件的要求(175)
5 生长发育时期(176)	6 栽培技术(176)	7 品种资源分类(176)	

【品种资源】

曲阜水芹(180)	长安水芹(180)	平顶山水芹(181)	朱兰水芹(181)	玉祁水芹(182)
六合水芹(183)	常熟水芹(183)	南通水芹(184)	宜兴异叶(184)	苏州水芹(185)
洪泽水芹(185)	溧阳白芹(186)	无锡水芹(187)	扬州长白芹(187)	丹阳白芹(188)
淮安白芹(189)	淮安城东水芹(189)	绍兴水芹(190)	芜湖尖叶(190)	芜湖水芹(191)

安庆水芹 (191)	安庆异叶 (192)	庐江水芹 (192)	庐江高梗 (193)	金鸡坡水芹 (193)
桐城水芹 (194)	舒城水芹 (195)	乐平水芹 (195)	临川水芹 (196)	江陵水芹 (196)
屈原水芹 (197)	来凤水芹 (197)	沙市水芹 (198)	江夏水芹 (198)	公安水芹 (199)
黄石水芹 (199)	福保山水芹 (200)	湘北水芹 (200)	益阳水芹 (201)	常德水芹 (201)
沅江水芹 (202)	邵阳水芹 (202)	衡阳水芹 (203)	海口水芹 (203)	琼海水芹 (204)
桂林水芹 (204)	柳州水芹 (205)	嘎云村水芹 (205)	南泉水芹 (206)	忠县水芹 (206)
丰都水芹 (207)	南川卵叶水芹 (207)	遵义水芹 (208)	贵阳水芹 (208)	安顺白花 (209)
安顺紫花 (209)	建水水芹 (210)	四季水芹 (210)	墨水水芹 (211)	呈贡水芹 (211)
云南细叶水芹 (212)	元江水芹 (212)	八街水芹 (213)	普洱水芹 (213)	景洪水芹 (214)
勐海水芹 (214)	勐腊水芹 (215)			

六、慈 姑

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|----------------|---------------|----------------|------------------|
| 1 概述 (219) | 2 来源及分布 (219) | 3 形态特征 (219) | 4 对环境条件的要求 (219) |
| 5 生长发育时期 (219) | 6 栽培技术 (220) | 7 品种资源分类 (220) | |

【品种资源】

白洋淀慈 (222)	西安野慈 (222)	淮阳乌慈 (223)	舞阳乌慈 (223)	南阳慈 (224)
上海慈姑 (224)	苏州黄 (225)	六合慈 (226)	洪泽乌慈 (226)	宝应紫圆慈 (227)
湖州白慈 (228)	杭州慈姑 (228)	调羹种慈姑 (229)	绍兴野慈 (230)	巢湖白慈 (230)
芜湖乌慈 (231)	南昌乌慈 (231)	金鸡坡慈 (232)	随州野慈 (232)	谢湾白慈 (233)
汉阳白慈 (233)	钟祥乌慈 (234)	秀林野慈 (234)	皂市白慈 (235)	博白野慈 (235)
南宁白慈 (236)	梧州乌慈 (237)	紫鞘慈姑 (237)	汕塘野慈 (238)	白肉慈姑 (238)
沙 姑 (239)	惠水乌慈 (239)	贵阳乌慈 (240)	建水乌慈 (240)	玉溪乌慈 (241)
八街乌慈 (241)	黑龙潭慈姑 (242)			

七、菱

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|--------------|----------------|--------------|------------------|
| 1 概述 (245) | 2 来源及分布 (245) | 3 形态特征 (245) | 4 对环境条件的要求 (246) |
| 5 栽培技术 (246) | 6 品种资源分类 (247) | | |

【品种资源】

同江菱角 (251)	微山湖弓菱 (251)	张江青菱 (252)	邵伯菱 (252)	苏州水红菱 (253)
馄饨菱 (254)	扁担菱 (254)	洪泽弓菱 (255)	小白板 (255)	驼背白菱 (256)
绍兴水红菱 (257)	大扒菱 (257)	南湖菱 (258)	巢湖大红菱 (259)	莆田菱角 (259)
梁子湖格菱 (260)	梁子湖野菱 (260)	武昌冠菱 (261)	大冶细果野菱 (261)	洪湖菱 (262)
嘉鱼菱 (262)	联城红菱 (263)	孝感红菱 (263)	益阳红菱 (264)	沅江耳菱 (264)
广州红菱 (265)	大头菱 (265)			

八、荸 苳

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|--------------|---------------|--------------|------------------|
| 1 概述 (269) | 2 来源及分布 (269) | 3 形态特征 (269) | 4 对环境条件的要求 (269) |
| 5 栽培技术 (270) | | | |

【品种资源】

信阳荸苳 (273)	苏州荸苳 (273)	宝应荸苳 (274)	六合荸苳 (274)	杭州大红袍 (275)
合肥荸苳 (275)	洋湖荸苳 (276)	芜湖荸苳 (276)	瑞金荸苳 (277)	萍乡荸苳 (277)
宜春荸苳 (278)	福州荸苳 (278)	连江荸苳 (279)	泉州荸苳 (279)	孝感荸苳 (280)
辛冲荸苳 (280)	团风荸苳 (281)	阳新荸苳 (282)	蕲州荸苳 (282)	宜昌荸苳 (282)
浏阳荸苳 (283)	衡阳荸苳 (283)	水马蹄 (284)	韶关荸苳 (284)	潮州荸苳 (285)
安顺荸苳 (285)	西乡荸苳 (286)	贵港荸苳 (286)	那龙马蹄 (287)	勐遮荸苳 (287)
桂林马蹄 (288)				

九、茭

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|--------------|----------------|--------------|------------------|
| 1 概述 (291) | 2 来源及分布 (291) | 3 形态特征 (291) | 4 对环境条件的要求 (291) |
| 5 栽培技术 (292) | 6 品种资源分类 (292) | | |

【品种资源】

紫花南苋 (296) 白花南苋 (297) 北苋 (刺苋) (297)

十、豆瓣菜

- | | | | |
|----------------|---------------|--------------|------------------|
| 1 概述 (301) | 2 来源及分布 (301) | 3 形态特征 (302) | 4 对环境条件的要求 (302) |
| 5 生长发育时期 (302) | 6 栽培技术 (302) | | |

【品种资源】

太原豆瓣菜 (305) 大叶豆瓣菜 (305) 广东豆瓣菜 (306) 百色豆瓣菜 (306) 贵州豆瓣菜 (307)

金平豆瓣菜 (307)

十一、蒲菜

- | | | | |
|--------------|----------------|--------------|------------------|
| 1 概述 (311) | 2 来源及分布 (311) | 3 形态特征 (311) | 4 对环境条件的要求 (311) |
| 5 栽培技术 (312) | 6 品种资源分类 (313) | | |

【品种资源】

明湖蒲菜 (316) 淮安蒲菜 (317) 白洋淀香蒲 (318) 芜湖香蒲 (318) 随州香蒲 (319)

径河蒲 (319) 沅江香蒲 (320) 昆明香蒲 (320) 建水草芽 (321)

十二、菱蒿

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|--------------|----------------|--------------|------------------|
| 1 概述 (325) | 2 来源及分布 (325) | 3 形态特征 (325) | 4 对环境条件的要求 (325) |
| 5 栽培技术 (325) | 6 品种资源分类 (326) | | |

【品种资源】

大叶青 (328) 大叶红 (329) 大叶白 (329) 小叶青 (330) 小叶红 (330)

李市菱蒿 (331) 鄱阳白 (332) 鄱阳红 (332) 昆明菱蒿 (333)

十三、莼菜

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|----------------|---------------|----------------|------------------|
| 1 概述 (337) | 2 来源及分布 (337) | 3 形态特征 (337) | 4 对环境条件的要求 (338) |
| 5 生长发育时期 (338) | 6 栽培技术 (338) | 7 品种资源分类 (338) | |

【品种资源】

西湖莼菜 (341) 富阳绿莼 (342) 太湖绿叶 (342) 利川莼菜 (343) 马湖莼菜 (343)

十四、海菜花

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|--------------|---------------|--------------|------------------|
| 1 概述 (347) | 2 来源及分布 (347) | 3 形态特征 (347) | 4 对环境条件的要求 (348) |
| 5 栽培技术 (348) | | | |

【品种资源】

海菜花 (349) 波叶海菜花 (349) 路南海菜花 (349) 靖西海菜花 (349)

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