

Table of Contents

	Page
I. Introduction and taxonomic history.....	1
II. Variation with <u>C. chinense</u>	8
1. Range of variation.....	8
A. Morphological variation.....	8
i. Quantitative characters.....	8
ii Qualitative characters.....	15
B. Physiological variation.....	16
C. Cytological variation.....	18
D. Geographic distribution.....	20
2. Genetic bases of the observed variation.....	20
A. Quantitative characters.....	23
B. Qualitative characters.....	35
3. The breeding system in <u>C. chinense</u>	53
4. Variation patterns in <u>C. chinense</u>	61
III. The relationships of <u>C. chinense</u> to other cultivated species.....	76
1. <u>C. chinense</u> and <u>C. frutescens</u>	76
A. Hybridisation studies.....	78
B. Discussion.....	93
2. <u>C. chinense</u> / <u>C. frutescens</u> and <u>C. pendulum</u> / <u>C. microcarpum</u>	94
A. Hybridisation studies.....	95
B. Discussion.....	121
3. <u>C. chinense</u> / <u>C. frutescens</u> and <u>C. annuum</u>	122
A. Hybridisation studies.....	124
B. Discussion.....	132
4. General discussion and summary of hybridisation studies and relationships.....	134
IV. <u>Capsicum</u> in pre-Conquest cultures: the archaeological and historical record.....	143
1. The archaeological record.....	143
2. The historical record.....	172
V. Effects of domestication in <u>Capsicum</u>	176

VI. Summary.....	179
VII. Appendix I. Morphological characters of <u>Capsicum</u> collections used for crosses.....	182
VIII. Appendix II. Detailed description of archaeological specimens of <u>Capsicum</u> in the Botanical Museum of Harvard University.....	185
IX. References cited.....	190
X. Vita.....	198

Introduction and taxonomic history.

The genus Capsicum, like most other economically important genera of the Solanaceae (e.g. Lycopersicon, Solanum, Nicotiana), is New World in origin. Species of Capsicum have long been cultivated for their pungent fruits, which are used as a condiment. It is a matter of common observation that in many cultivated plants the part of the plant which is of economic significance exhibits considerable variability, and in the cultivated species of Capsicum this is shown in the great diversity in colour, shape and size of the fruits.

Excessive emphasis on fruit characters led the pre-Linnaean taxonomists to recognise a multiplicity of species of Capsicum, twenty-seven being listed by Tournefort. Linnaeus himself in his Species Plantarum (1753) reduced this number to two: C. annuum (herbaceous) and C. frutescens (shrubby). Following publication of the Species Plantarum, a return to the use of fruit shape and position to discriminate between forms resulted in another increase in the number of specific names applied within the genus. Dunal (1852), monographing Capsicum in De Candolle's Prodromus, recognised fifty species, many with a number of varieties, besides listing fourteen doubtful or little-known species. However, as at the time of Linnaeus, a reaction set in against this large number of species, distinguishable only on fruit characters, and the next revision of the genus, that of Irish (1898), marked a return to the Linnaean concept of two species, C. annuum and C. frutescens. Bailey (1923)