CHAPTER II

REVIEW OF LITERATURE

The present chapter deals with the brief review of literature on taxonomic aspects of grasses of world, India and Andhra Pradesh.

WORLD

One of the first papers to deal specifically with grasses was that of Johann and Scheuchzer in 1708 under the title *Agrostographiae Helvetica Prodromus* (Gould & Shaw, 1983). Linnaeus (1753) keyed and listed a total of 40 grass genera. Brown (1810) was the first to describe the true nature of the grass spike let and to recognize two subdivisions of Gramineae, viz., Panicoideae and Pooideae, but subsequently referred as Paniceae and Poaceae respectively. Beauvois in 1812 described a large number of genera of grasses (Gould & Shaw, 1983). The natural classification system of Bentham (1881) presented thirteen tribes under two subfamilies, Panicoideae and Festucoideae. Other important contributors for grass systematics in the first half of twentieth century were Hitchcock (1920, 1935, and 1951) on grasses of United States and Bews (1929).

The most outstanding contribution to grass systematics was made by W.D. Clayton. He and his associates published a series of papers on grasses in Kew Bulletin from 1970 onwards. Clayton and Renvoize (1986) have made a monumental contribution on world grasses. They recognized about 651 genera and 10,000 species in ± 60 tribes of grasses. Dassanayake (1991) reported 345 species belonging to 136 genera of Poaceae from Sri Lanka. Ohrnberger (1999) studied the bamboos of the world. He reported 1575 species of woody and herbaceous bamboos.

INDIA

General

Early works on Indian grasses include those of Duthie (1883), Symmonds (1886), Coldstream (1889), Lisboa (1896) and Burns and Kulkami (1928). A first detailed account on grasses of India was presented in 'Flora of British India' (Hooker, 1896), which covered 700 species under 130 genera. A critical review of grasses of India was of N.L. Bor's monumental work covering not only India but the entire subcontinent (Bor, 1960). He has made a critical study and reported 1165 infrageneric taxa (excluding bamboos) treated fewer than 220 genera from the present boundary of India. Accordingly about 32.7% of the total taxa were reported endemic to the subcontinent.

Jain (1961) provided a detailed account on bibliography of Poaceae. Jain (1967 a & b, 70, 72, 81) made revisionary studies on Arthraxon, Cynodon, Manisuris, Oropetium. Majumdar (1973) reported 29 species of Panicum from India. Jain and Deshpande (1978) transferred some Indian species of Bothriochloa and Capillipedium to Dichanthium. Vedprakash et al. (1978) described some additions to the Indian grasses including Coelachyropsis lagopoides, and Iseilema venkateswarulii. Nayar (1980) studied the endemism of angiosperms in India and reported that out of 141 endemic genera of India, 16 are from Gramineae.

presented a synoptic review of India grasses which covers 1181 species under 233 genera.

Rao (1994) estimated 1225 taxa of Poaceae in India. He listed 133 rare and endangered grasses. Cook (1996) enumerated 77 species of grasses under 42 genera of aquatic and wetlands of India. While studying the hotspots of endemism in India, Nepal and Bhutan, Nayar (1996) reported 227 taxa, endemic to Peninsular India. Moulik (1997) presented a synoptic review of grasses and bamboos of India, 3 sub varieties, 131 varieties and 5 formal taxa.

Muktesh Kumar et al. (2000) reviewed the position of Indian bamboos. Accordingly the tribe Bambuseae is represented by 128 species under 18 genera. Nair & Sharmila (2001) presented a critical review on Poaceae in India. Accordingly, Poaceae is the largest family in India representing 1291 species, of which 318 taxa are reported endemic to India. Samson and Dayanandan (2002) studied the taxonomy and ecology of photosynthetic subtypes of Indian grasses, in which they worked out 1263 grass species and found that out of 489 species recorded from Deccan area, 83% are C4 plants.


Achariyar and Tadulinga (1921) described and illustrated 103 species of common South Indian grasses. Fischer (1934) has made a critical study on the grasses of erstwhile Presidency of Madras covering the states of Andhra Pradesh, Karnataka, Tamilnadu, and parts of Kerala and Orissa. He described 350 species of grasses under 126 genera. Nair and Nair (1981) reviewed on the grass flora of erstwhile Madras Presidency.

Cooke (1908) reported 213 grass species belonging to 72 genera known to encounter in the Presidency of Bombay. Blatter and McCann (1935) described and illustrated 284 species grasses from Bombay. Lakshminarasimhan (1996) while
studying the monocot flora of Maharashtra, recorded 112 genera, 346 species 3 sub 
varieties, 47 varieties of grasses from the state.

Henry et al. (1989) has presented a critical analysis on Gramineae of 
Tamilnadu. Their work listed 456 species belonging to 144 genera from the state. 
Matthew (1999) studied 233 species belonging to 95 genera of Poaceae from Paliani 
hills. Sharma et al. (1984) has presented an analysis on the flora of Karnataka in 
which a total of 381 species belongs to 101 genera recorded from the state. 
Sreekumar & Nayar (1991) has made a monumental study on Kerala grasses and 
reported 296 species belonging to 103 genera. The flora covers 26 taxa, new to 
science and two new genera.

ANDHRA PRADESH

In the last quarter of 19th century and beginning of 20th century, some 
European scientists Wight, Beddome, Barber, Elliot, Bourne, Lushington surveyed 
many places of Andhra Pradesh and collected some interesting plants including 
grasses before the publication of the flora of the presidency of Madras.

Gamble made intensive collections in East and West Godavri, Srikakulam, 
Visakhapatnam, Anantapur, chittoor, Kurnool and Cuddpah districts and published 
flora of the presidency of Madras with Fischer (Gamble & Fischer, 1915-35). Their 
work included the collections those of Wight, Bourne, Ramaswamy, Narayanaswamy 
and Ranga Achariar. After reorganization of Botanical Survey of India in 1954, the 
scientists group including G.V. Subba Rao, M. Subramanyam, N.P. Balakrishna, J.L. 
Ellis, A.R.K. Sastry surveyed many places of Andhra Pradesh collected and 
published information on number of interesting grasses.

Prasanna and Pullaih (1988) reported 23 taxa of the genus Eragrostis from 
Andhra Pradesh. Prasanna et al. (1992) recorded 11 species of genus Panicum 
from Andhra Pradesh. Gayathri and Pullaiah (1997) recorded 287 grass taxa from 
the state including 16 cultivated species.

Telangana region

Patridge (1911) listed some common grasses in his forest flora of H.H., the 
Nizams Dominions, Hyderabad, Deccan. Suxena (1947) also presented an account 
of 115 grasses of H.E.H., The Nizam's Dominions, Hyderabad, Deccan including 
Elytrophorus spicatus. Ramachandrachary and Ramayya (1986) added some
grasses as additions to the forest flora of Telangana region which includes *Arthraxon lancifolius*, *Chrysopogon orientalis*, *Cymbopogon gidarba* and *Themeda triandra*.


**Rayalaseema region**
- Prasanna (1987) studied the grasses of Rayalaseema and enumerated 176 species belonging to 79 genera.

**Cuddapah district**

**Chittoor district**
- Narayana Rao *et al.* (1981) reported 89 species of grasses belonging to 83 genera from Tirumala hills. Rangacharyulu (1991) described 41 grass species under 32 genera from Chittoor district. He collected a rare grass *Dimeria lehmanii* from Kambakam hills. Thammanna *et al.* (1994) while studying the angiospermic wealth of Tirumala hills recored 54 genera and 82 species of grasses.

**Kurnool district**
Raju and Pullaiah (1995) recorded 119 grass species belonging to 60 genera from Kurnool district. Sunitha (2002) made a significant contribution to the grass flora of Kurnool district. She studied some selected sacred groves and collected 123 taxa belonging to 58 genera. She collected one extremely rare grass *Parahyparrhenia bellariensis* from Nalamalais.

**Anantapur district**

Wight collected an extremely rare grass, *Parahyparrhenia bellarensis* from Gooty fort of Anantapur district (Pullaiah & Yesoda, 1989). Fischer (1934) mentioned that Campbell also collected this grass from the same locality. This species have not been collected from the type locality after Wight. Pullaiah and Yesoda (1989) enumerated 93 grass species belonging to 50 genera from Anantapur district which includes *Rhynchelytrum repens* and *Paspalum paspaloides*, then reported new records to Andhra Pradesh.