TAXONOMY OF THE GENUS APLUDA L.

From the time of Linnaeus, the taxonomy of the genus Apluda has been much discussed. Hooker (1897) placed it in a separate subtribe Apludaeae of the tribe Andropogoneae. Similarly, Stapf (1917) gave it the rank of a separate subtribe Apludastreal in the Andropogoneae, while Pilger (1940) placed it in the subgroup Apludinae of the subtribe Ischaeminae. In this genus, normally, the unit of the inflorescence is a one noded triplet of spikelets. This unit consists of a sessile hermaphrodite spikelet, a pedicel carrying a male spikelet and a pedicel crowned by a minute rudiment, the whole seated upon a peduncle which starts from a spathe (Bor, 1960). In some of the units on the other hand, the pedicelled male has been transformed into a triplet so that there is a fertile spikelet, flanked by a rudimentary pedicelled spikelet, while the pedicel of the normal male spikelet becomes an internode crowned by a sessile fertile, flanked by two pedicelled spikelets one of which is male and another rudimentary. The result of this is that instead of the normal triplet of spikelets, one gets a partial raceme on the usual plan of the false raceme in the Andropogoneae. The occurrence of these 2 noded spikelets suggests its relationship with the other Ischaeminae, all of which have racemes with more than one node. But the peculiar bulb like swelling at the base of the triplet of spikelets is so characteristic of the genus Apluda, that its place as a separate subgroup in the subtribe Ischaeminae is well justified.

By far, the real controversy lies in the delimitation of the species. The genus has been considered as very polymorphic and unstable (Hooker, 1897; Stapf, 1917). Linnaeus (1753) described the unawned form of this grass under the name Apluda mutica L., but, subsequently (1756) he felt that the awned form is a distinct species and named it Apluda aristata L. Since then it has puzzled a good number of systematists, because of the 2 states in which it is found viz., awned and awnless. Hackel (1889) solved this difficulty by giving the plant a new name, Apluda varia, of which he had 2 subspecies, subsp. aristata Hack. and subsp. mutica Hack. both of which he divided into varieties and sub-varieties (Bor, 1560). Pilger (1940) recognized a single species, Apluda mutica L. comprising 2 varieties, variety mutica (awnless) and variety aristata (awned). Bor (1960) considered that there will be no useful purpose in the present state of our knowledge in maintaining Hackel’s varieties as these varieties pass into one another by numerous intermediates and suggested that a thorough investigation using the methods of experimental taxonomy is needed in the genus.

Murty (1965) reported 3 chromosomal races viz., diploid (2n = 20), hexaploid (2n = 60) and heptaploid (2n = 70). Studies of gross morphology (Murty 1972a), meiotic behaviour (Murty 1972b) and pachytene chromosome morphology (Murty 1972c) indicated inter-varietal polyploidy in the genus. All the forms included in Murty’s studies are awned and hence are referable to the subspecies aristata of Hackel (1897) or to the variety aristata of Pilger (1940). Following Hackel, Hooker (1897) classified the awned Indian varieties of “this very unstable and highly polymorphic plant” into 4 varieties: 1. var. aristata Hack, 2. var. ciliata Hack, 3. var. villosula Hack and var. rostrata Hack.

The criteria which Hackel used in his classification are: 1. length of the spathe in relation to the length of the spike, 2. length of the sessile spikelet in relation to the length of the terminal spikelet, 3. length of the bulbous base, 4. hairiness of glume I and 5. degree of incurving of the spike.

It has not been possible to distinguish the three cytological races included in Murty’s
(Murty 1968) study into distinct varieties on
the basis of these criteria. Further more,
the characters were observed to vary in pro-
genies raised from selfed or open pollinated
seed of a single plant. Variation in respect
of these characters in the progenies of the
diploids and polyploids was rather continu-
ous and the range of variation was the same
for all the three cytological races, rendering
it difficult to refer these races to any of the
4 varieties of Hackel. Morphological study
of the diploid suggests that the possibility
of introgression between sympatric popula-
tions of morphologically distinct subspecies
or varieties cannot altogether be ruled out
(Murty, 1968). Another possibility is that
the diploids are products of introgressive hy-
bridization, possessing a greater adaptive ad-
vantage, compared to their ancestors, which
might have become extinct or the existence
of which can be revealed only by an exten-
sive collection of the genus from the entire
area of its geographical distribution. Alter-
natively, it may be that polyploidy and the
characteristic breeding systems associated
with the diploids and the polyploids alone
might have been responsible for the high
variability and polymorphism observed by
systematists who worked on the genus
(Murty, 1972b).

As will be reported elsewhere the genus
exhibits intervarietal autopolyploidy and
such cases of polyploidy pose major problems
to the taxonomist. Davis and Heywood
(1963) have reviewed several examples of au-
topolyploids (using the term loosely), which
can be divided into cryptic, semicryptic and
distinct, with the consequent taxonomic
status accorded to them ranging from no
formal recognition at all, to the rank of dis-
tinct species. In the present study about
600 specimens of the genus were observed in
the Central National Herbarium (Calcutta,
India), collected from China, Japan, Pakis-
tan, India, Burma, Ceylon, Philippines, Java,
Malaya and Australia. The various speci-
mens exhibited striking variations in respect
of the size of the vegetative and floral parts.
But the variation was not discrete to enable
any convenient classification. All of them,
however, can be classified into two groups,
those with awns and those without. No other
differences were found to be consistently as-
sociated with this character. Though, length
of the awn also varied between extremes,
awnless and awned forms could be made out
rather easily.

From the above discussion, it appears that
the only practicable solution would be to
recognize a single highly variable species
with two varietics viz., awned and awnless.
In general, this system is in accordance with
that adopted by Bor (1960) and in particular,
with that of Pilger (1940).

Even from the biosystematic point of view,
or biological species concept (Love, 1964),
since the diploid easily crosses with the poly-
ploids (when the latter are used as the male
parents) and the hybrids are seed fertile
(Murty 1968) it is not possible to assign the
ranks of specific taxa to the three cytological
races, even in the absence of information as
to the occurrence or non-occurrence of any
"prezygotic isolation mechanisms"

1. Appla mutica L. var. mutica Pilger in
Natl. Pflanzenf. 14: 130. 1940. A. mutica L.
Fl. Ind. 1: 327. 1820. A. gigantea Spreng.
Syst. Veg. 1: 290. 1825. A. humilis Kunth
Enum. Pl. 1: 517. 1833. A. mucronata
A. varia subsp. mutica Hack. in DC. Mo-
nogr. Phan. 6: 196. 1889. Andropogon
glaucus Retz. Obs. Bot. 5: 20. 1789. Cala-
mina gigantea (Spreng.) P. Beauv. Ess.
Agrost. 128. 1812. Calamina humilis J.S.
1831.

2. Appla mutica L. var. aristata (L.) Pil-
ger. in Natl. Pflanzenf. 14: 130. 1940. A.
aristata L. Amoen. Acad. 4: 303. 1756. A.
NEW RECORDS OF FLOWERING PLANTS FOR KASHMIR—I

A perusal of the literature revealed that the following species of flowering plants, which were collected by the author from different parts of Kashmir valley, are hitherto not reported from Kashmir. Three of the reported genera viz., Lactuca, Lathyrus and Euphorbia have been treated in detail for Kashmir species in Blatter’s “Beautiful Flowers of Kashmir” (1927-28), yet the species belonging to these genera and reported below do not occur there in, or in any other work dealing with Kashmir plants. The voucher specimens are deposited in the Herbarium of Kashmir University, Srinagar.


Flowers: May-June.

Locality: Mountain slopes around Manasbal lake, Gurcharan Singh 4011. Fairly common.


Flowers: May-July.

Locality: Pampore saffron fields, Kashmir, Gurcharan Singh 3267; Kashmir University campus, Gurcharan Singh 2541a.


Flowers: May-June.

Locality: Harwan among shrubs, Gurcharan Singh 2217; Dachhigam forest among shrubs, Gurcharan Singh 3370a.


Flowers: April-May.