TABLE I

Grain and straw yields, N content of rice crop and nitrogen losses of applied N from the soils

Treatment	Grain yield Q./ha.	Straw yield Q /ha.	N content of crop Kg./ha.	Ammoniacal N + Nitrate N left in soil (0–30 cm.) Kg./ha.	Applied N lost (over control)	
					Kg./ha.	Per cent of applied N
Control ..	19·1	55·3	34·0	22	No N applied	..
Sodium nitrate ..	26·7	63·0	52·0	16	58	82·8
Ammonium sulphate ..	30·2	78·4	56·0	21	48	68·5
Ammonium sulphate treated with N-serve	38·4	92·3	73·0	22	31	44·3
S.E. ..	2·3	..	..	..	..	..
L.S.D. 0·05 ..	7·8	..	..	..	..	..

* Applied at 70 kg. N/ha.

nitrate forms. Ammonium nitrogen was also applied after treatment with N-serve to investigate the possibilities of reducing the loss of applied nitrogen. Nitrogen was applied in this experiment at 70 kg. N/ha. (40 kg. before transplanting, 20 kg. and 10 kg. top-dressed after 21 and 51 days of transplanting, respectively). N-serve treatment of ammonium sulphate consisted of blending the fertilizer in 1 litre capacity capped bottles with N-serve dissolved in acetone and applied at the rate 2% of nitrogen. Blending was done by shaking with hand for 5 minutes. Experimental design adopted was randomized block with 3 replications and rice variety grown was NP 130. The field where this trial was conducted had a clay-loam soil.

The results obtained are summarised in Table I. Grain and straw yields were maximum in plots receiving ammonium sulphate treated with N-serve and were followed in order by plots receiving ammonium sulphate and sodium nitrate. N-serve treatment gave an increase of 8·2 Q/ha. of rice and 13·9 Q/ha. of straw. The difference due to N-serve treatment was significant with respect to grain yield of rice.

Plant and soil analysis revealed a very interesting picture of the nitrogen economy of the soils under upland paddy conditions subjected to frequent flooding. The losses of applied nitrogen were to the tune of 82·8% and 68·5% for sodium nitrate and ammonium sulphate, respectively. Losses of nitrogen were reduced to 44·3% when ammonium nitrogen was applied after treatment with N-serve. The results reported here suggest that N-serve can be used for minimizing the nitrogen losses from upland paddy soils.

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* Designated as "N-serve," by Dow Chemical Company U.S.A.

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CHEMICAL CONSTITUENTS OF *ARGEMONE OCHREOLEUCA* SWART.

IN an earlier communication,[1] the lowering of pH of alkaline soils by the addition of the stems and the leaves of *Argemone mexicana* Linn. has been mentioned and the chemical constituents present therein reported. During our use of *A. mexicana* Linn. for the reclamation of Usar land we came across another species of *Argemone*, viz., *A. ochreoleuca* Swart. growing sparsely in Uttar Pradesh which is a tetraploid in having 56 chromosomes instead of 28 present in *A. mexicana* Linn. but is different in its morphological characteristics. The present communication deals with the chemical constituents present in the stems and the flowers of *A. ochreoleuca* Swart. about which no reference is available in literature. The following compounds have been isolated or identified by chromatography :

Alkaloids.—Berberine nitrate (0·05%) and protopine nitrate (0·05%).

Colouring Matters.—Iso-rhamnetin (0·05%) and its glycoside (0·07%).

Fatty Constituents.—Palmitic, cerotic, oleic and linoleic acids; B-sitosterol and ceryl alcohol.

Water-soluble Organic Acids.—Succinic, malic, citric and tartaric acids.

Free Amino-Acids.—Lysine, alanine, proline, valine, serine, phenyl alanine, asparagine, threonine and asparctic acid.

Combined Amino-Acids.—Valine, proline, alanine, glycine, phenyl alanine, asparagine and glutamic acid.

Inorganic Salts.—Potassium nitrate (2·5%) and calcium sulphate (0·6%).

The above results are of interest from chemo-taxonomical point of view.

National Botanic Gardens, Lucknow (U.P.), *December* 16, 1965.

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A NOTE ON THE CYTOTAXONOMY OF *CHLOROPHYTUM LAXUM* R.Br.

Chlorophytum laxum R.Br. belongs to the family Liliaceæ. According to Hooker[1] it is distributed in the Deccan Peninsula in India, Ceylon, Borneo, China, tropical Africa and Australia. It is a grass-like perennial weed. Roots are fleshy and some portions are tuber-like. Shoot emerges out of the soil after monsoon rains. Leaves are distichous and recurved. Scape is flexuous and filiform. Flowers are minute and occur in pairs on the axis of the inflorescence. In each pair one of the flowers is old and the other is young and both are subtended by bracts. Anthers are shorter than filaments. Fruit is a capsule. Flowering starts in May and extends up to August. The entire shoot dies in summer.

The material for the present study was collected from three localities, Hebbal and Cubbon Park, Bangalore and Nandi Hills, Kolar District.

Preparation of temporary slides of mitotic and meiotic stages was as described by Heimburger[2] and Boraiah and Heimburger.[3] Temporary slides were passed through 1 : 1 *n*-butyl alcohol and acetic acid and then *n*-butyl alcohol and were mounted in euparal.

The chromosome number was found to be 16 (Figs. 1 & 3). The chromosomes are metacentric and near metacentric. No chromosome with secondary constricition was found.

Meiosis was regular. Eight bivalents (Fig. 2) were found in Metaphase I. Neither lagging chromosomes nor bridges and univalents were seen in Anaphase I and II. Micronuclei were absent in pollen tetrads.

FIGS. 1–2. Fig. 1. Somatic metaphase chromosomes $2n=16$. Fig. 2. Metaphase I with 8_{II}.

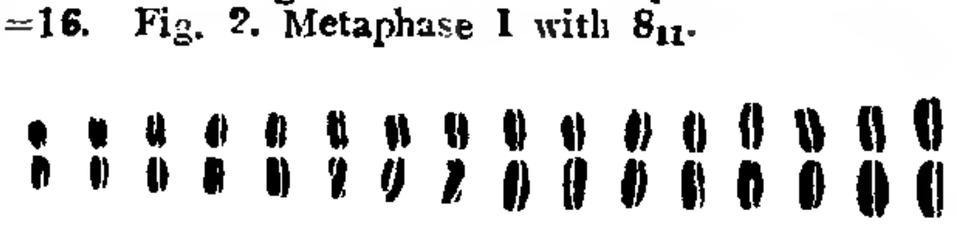

FIG. 3. Drawing of somatic metaphase chromosomes, × 700.

Even though spontaneous inversion in *Chlorophytum elatum*[4] and reciprocal translocation in somatic chromosomes in *Chlorophytum heynei*[5] have been reported, such phenomena were not seen in *Chlorophytum laxum*.

Baldwin and Speese[6] have studied the cytology of the several species of *Chlorophytum*