The colour of the flowers of *S. cilliata* collected from different localities is whitish blue though Royle's[1] original description is yellow. This observation is in conformity with earlier findings[2,3].

No report of sterility in alternate stamens and the presence of nectariferous disc has so far been made. In the light of this observation *S. cilliata*, Royle may be described as follows: *Annual herb*, upto 20 cm high; mainstem branched near the base, round, glabrous. *Leaves*: Even pinnate, rachis 1·8 cm–2·5 cm long, ending in a bristle ± 0·3 cm long, bristles on the lower surface of rachis, leaflet (0·5 cm–1·2 cm) × (0·3 cm–0·4 cm), not sensitive, 8–20 in number per leaf, lower leaflets with subparallel edges, upper smaller leaflets obovate-oblong, bristles mainly on the edges and midrib below. *Stipules* persistent, membranous length ± 0·9 cm, with large auricle. *Flowers*: 6–9 in axillary, unilateral racemes, bracts 0·5–0·1 cm long, membranous persistent, bracteobs-2 persistent with serration at the upper part. *Calyx*: Deeply two lipped, upper lip 2-lobed and lower lip shortly 3-lobed. *Corolla*: Petals white with bluish tinge exerted standard (±0·8 cm), suborbicular with long claw (± 0·4 cm), wing (± 0·7 cm) oblique oblong, keel (±0·6 cm) incurved obtuse. *Androecium*: stamens connate in two lateral bundles of 5 each, ± 0·5 cm long alternate anther sterile to produce staminode. *Gynoecium*: carpel–1ovary sessile, with a nectariferous disc surrounding the base, normally 8-ovules, style filiform incurved, stigma indistinguishable. *Fruit*: lomentum of numerous turgid 1-seeded joints, folded together inside the calyx, seed reniform.

Further work on factors controlling sterility in reproductive parts is in progress.

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HYDROCYANIC ACID (HCN) CONTENT IN SORGHUM AS AFFECTED BY AGE AND SOIL SALINITY

HYDROCYANIC ACID, present in early growth of sorghum, is toxic to cattle[1,2]. However, varietal differences with regard to HCN content have been noticed by Benson *et al*[3]. The present study was undertaken to investigate the variation in the HCN content in a few new varieties/hybrids of sorghum popular in Karnataka and the effect of salinity at periodical stages of crop growth.

Five improved varieties/hybrids of sorghum (Table I) were sown on June 18, 1977 in micro-plots

TABLE I

HCN content (ppm) in leaves of sorghum varieties/hybrids at different growth stages (on fresh weight basis)

Variety	Days after sowing		
	25	50	75
168	7·1	2·8	0·4
SB 1066	12·1	4·1	1·5
SB 101	14·1	0·4	0·5
*CSH–1	36·1	2·7	0·4
CSH–6	55·1	4·6	2·1

* Hybrid.

at the Regional Research Station, Dharwad. The leaves of the plants were sampled at 25, 50 and 75 days after sowing and analysed for HCN as per standard procedure[4]. Since a correlation between HCN in sorghum leaves and that in whole plants was reported to exist[3], only leaf samples were collected for analysis. In another trial, CSH-5, an improved hybrid of sorghum, sown on June 15, 1977, was irrigated four times with saline water having salt levels of 1280, 2560, 3840, 5120, 7680 and 10240 ppm commencing from one month of establishing the crop, at an interval of about 15 days. Saline water was prepared using sodium chloride, calcium chloride, magnesium sulphate and sodium bicarbonate to give the ratios of 12 : 5 : 3 for the cations sodium, magnesium and calcium, and 2 : 1 : 1 for the anions chloride, sulphate and bicarbonate, respectively. Irrigation with good water (with a salt level of 128 ppm) was included as control treatment. HCN in the leaf samples from the various treatments was determined as above at 25, 45, 65 and 80 days after sowing the crop. The analysis was conducted in duplicate in both the trials.

The results of mean HCN content in the leaves of the five varieties/hybrids at three stages of the crop growth are presented in Table I. It is seen that the initial level of HCN in all the samples is high ranging from 7·1 ppm to 55·5 ppm and there is a decrease in its content with advance in the age of the crop. The decrease is more marked between 25 and 50 days after sowing, especially in case of CSH–6 and CSH–1. It has been reported elsewhere that the HCN content was 94·5 mg%, 27·1 mg% and 11·7 mg% in 30, 45, and 90 day-old jowar fodder (on dry weight basis)[5]. Similar decrease was also noticed by other workers[2].

In the present study, it is also observed that there is a variation in HCN in the several varieties tested. Variety 168 has shown the lowest content of the constituent, followed by variety SB 101 in many samplings, even though the variety SB 1066 showed lower levels than SB 101, when the crop is 25 days old. However, hybrid CSH–6 has indicated the highest figures in all the three samplings. Varietal differences in HCN in the two varieties "Piper" and "Green leaf" Sudan grass and one hybrid Suhi-1 of sorghum were reported by other workers[6].

Data on the variation in HCN level in CSH–5, as affected by salinity, are given in Table II. It is noticed

TABLE II

Effect of salinity on HCN content (ppm) in leaves of sorghum (CSH–5) at various growth stages (on fresh weight basis)

Salinity levels ppm	Days after sowing			
	25	45	65	80
128 (Control)	39·8	5·3	1·3	0·4
1,280	28·4	6·7	2·1	0·4
2,560	25·8	6·8	2·1	0·8
3,840	24·4	10·6	1·6	..
5,120	23·7	11·8	1·6	0·7
7,680	13·7	13·7	1·6	0·8
10,240	13·7	13·7	2·7	1·4

that in the initial stage, HCN content in the leaves has been found to get reduced with increase in salinity from 39·8 ppm to 13·7 ppm. This initial reduction is due perhaps to the poor growth of the plants on account of salinity. The decrease, however, is not observed in the later samplings as the plants advance in age. It is also found that the initial level of HCN is high and decreases with age as observed earlier, irrespective of the salinity levels. But at lower salinity levels, the decrease is found to be sharp, especially between the first and second samplings unlike in the higher salinity series. Thus, while the levels of HCN at 25 and 45 days are 39·8 ppm, 28·4 ppm; and 5·3 ppm, 6·7 ppm in the control and salinity level of 1280 ppm respectively, the corresponding values for these two samplings at salinity levels of 3840 and 5120 ppm are 24·4 and 23·7 ppm; and 10·6 and 11·8 ppm. Very high salinity levels (7680 and 10240 ppm) do not show any variation in HCN levels in the first two samplings (13·7 ppm). It may be mentioned here that at high salinity levels, the vegetative growth period of the plant is found to be prolonged and hence, it is possible that the decrease in HCN content is not as marked as in the lower series of salinity. However, with further advance in growth, the differences among the treatments are not marked.

The studies, thus, reveal that there is difference in level of HCN in the sorghum varieties/hybrids tested and this is influenced by the vegetative growth period of the plant. A prolongation in vegetative phase of the crop by salinity is found to delay the reduction in the level of HCN in leaves.

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ISOLATION OF *SPIRILLUM LIPOFERUM* FROM THE STEMS OF WHEAT AND NITROGEN FIXATION IN ENRICHMENT CULTURES

Spirillum lipoferum has been found to be closely associated with roots of several grasses and crop plants including wheat[1-6]. In the present report, evidence is presented to point out that *S. lipoferum* could be isolated from the stems of several varieties of wheat by the enrichment culture method. Such enriched cultures were capable of fixing nitrogen to different