INITIATION OF LACTATION IN HEIFERS AND COWS

FOLLEY, *et al.* (1941) were successful in initiating lactation in virgin goats by rubbing diethylstilbesterol ointment on the udder. Similar results were obtained by Folley and Malpress (1944) in the case of heifers.

Two barren heifers and one dairy cow were treated with stilbesterol-dipropionate dissolved in oil. To start with all the three animals were injected 2 ml. (containing 20 mg. of stilbesterol-dipropionate) of the oestrogen. Two more injections were subsequently given.

The heifer No. 314 showed mammary development within a week. The little milk that was secreted was mixed with some blood. Intense manipulation of the udder was started and after about a week the animal's milk yield increased to 2 lbs. After a fortnight the milk became normal in appearance. The milk yield had gone up to 15 lbs. per day in 90 days after the milking was first started.

The heifer No. 445 began secreting milk about a week after the second injection and cow No. 332 came in milk a week after the first injection of stilbesterol-dipropionate.

Details of the milk yield and composition of milk are shown in the table. At the start of the lactation the milk obtained closely resembled normal milk rather than colostrum. The total proteins, solids-not-fat and chlorine were rather high and lactose percentage low compared to normal milk. The composition became almost normal after about three weeks.

The animals treated with stilbesterol-dipropionate continued to be in good health throughout the period of study. This treatment has given very promising results which may be extended with benefit on a large scale to initiate milk in barren heifers and cows whose number forms a considerable part of the cattle population of this country.

Yield and composition of milk secreted by animals treated with stilbesterol-dipropionate

Injections given	Days milking started after injection	Days in milk	Daily milk yield lb.	% Composition of milk				
				Fat	Solids not-fat	Total proteins	Lactose	Chlorine
Heifer No. 314.	←	→						
	—	7	1·0	3·5	11·64			
2 ml. ..	7	14	2·0	5·7	10·14	5·63	4·04	0·111
(1—4—46) ..	14	21	4·2	5·8	10·08	4·91	4·61	0·111
3 ml. ..	21	28	4·4	7·0	10·52	4·86	5·23	0·110
(11—5—46) ..	28	35	6·0	6·6	10·07	4·76	5·60	0·111
2 ml. ..	60	67	13·5	6·1	10·12	4·23	5·33	0·086
(2—6—46) ..	90	97	15·1	6·3	10·52	4·25	5·25	0·069
Heifer No. 445.	←	→						
2 ml. ..	—	50	0·6	4·3	10·48	5·55	4·04	0·159
(1—4—46) ..	7	57	1·1	4·7	10·15	4·56	4·71	0·123
2 ml. ..	14	64	2·9	5·2	9·80	4·18	4·97	0·106
(11—5—46) ..	21	71	3·4	6·1	9·87	4·25	5·10	0·102
2 ml. ..	28	78	4·0	6·5	9·63	4·20	5·14	0·079
(2—6—46) ..	60	110	4·7	5·8	9·25	3·95	4·90	0·069
	90	140	3·9	5·8	9·43	3·95	4·95	0·062
Heifer No. 332.	←	→						
	—	7	2·7	4·6	13·10	8·37	4·49	0·135
2 ml. ..	7	14	4·1	5·2	11·23	6·55	4·92	0·092
(26—5—46 ..	14	21	4·2	5·8	10·10	4·83	5·07	0·092
2 ml. ..	21	28	5·9	5·6	10·26	4·60	5·04	0·080
(15—6—46) ..	28	35	5·4	5·9	9·79	4·33	5·02	0·079
2 ml. ..	60	67	5·6	6·7	9·58	4·30	5·16	0·072
(6—7—46) ..	90	97	5·7	6·2	9·91	4·12	5·06	0·057

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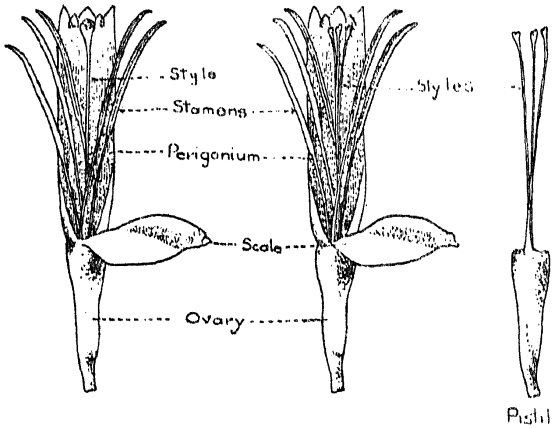
1. Folly, S. J. and Malpress, F. M., *J. Endocrinology*, 1944, **4**, 37. 2. Folly S. J., Watson, H. M. and Bottomly, A. C., *J. Dairy Research*, 1941, **12**, 24.

FLOWERS WITH THREE STYLES IN *MUSA SAPIENTUM* LINN.

Musa sapientum Linn. (*M. paradisiaca* Linn.) is trimerous in its floral organs. In a normal flower, the inferior ovary carries on it the irregular perianth in two parts, one called the

perigonium representing five perianth lobes, and the *scale* representing the sixth. Variations in number and shapes of the perianth parts have been recorded by K. C. Jacob.* Besides the five stamens which are usually found, the sixth rudimentary or fully developed one has been very often met with. Of the gynoecium, the ovary is three-carpelled and syncarpous, style single and stigma also single with undulating surface.

An unusual type with flowers having three styles was met with in one plant of the local variety, Ney Mannan (*vide* Fig.). Many of



the flowers in the inflorescence of this plant were of this unusual type mixed with the normal single styled flowers. Except for the division of the styles to the base, there was no other variation.

Transverse sections of the styles of the normal type and the unusual type were compared. While the normal style has three vascular strands running up to the stigma, there was only one vascular strand in each of the styles of the unusual type, thus showing it to be a simple division of the style into three.

Madras Herbarium, Coimbatore, December 16, 1946.

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* Jacob, K. C., *Monograph on Madras Bananas* (Unpublished).

A NEW RECORD FOR *FRITSCHIELLA TUBEROSA* IYENG.

Fritschiella tuberosa Iyeng., a rare member of the order Chætophorales, is a subaerial alga which grows on drying cakes of mud in freshwater ditches. Its peculiar habit and occurrence point the way to the land habit as has been suggested by Iyengar (1932), and also by Singh (1942).

Singh (1941) who worked the autoecology and life-history of the species mentions the relevant literature and also the various situations in which it is found to occur. Iyengar "reported the plant growing on moist silt of drying rainwater pools in Madras, as well as at Talaguppa in the Mysore Province". Randhawa "records its growth in a drying pond and on the banks of the River Sarju", as well as from "fields lying fallow in the Fyzabad District". Singh found it on alkaline land some distance from the Benares Hindu University.

Recently, the author came across this alga in a similar situation to that described by Iyengar. At first it was found growing in association with *Protosiphon* and *Botrydium* as dark-green clusters on sloping ground by the side of a drying ditch seven miles south of Bangalore; and again in a drying pool near Malleswaram, Bangalore. In view of the very few localities in which this species has previously been found the present is an interesting record of its occurrence. What struck the author most, however, was the fact of its occurrence at two places in Mysore State which are situated in climatically diverse regions, Bangalore and Talaguppa being in the *Maidan* and *Malnad* parts of the State respectively.

I thank Dr. M. O. P Iyengar, who found the genus and species, for confirming my determination; and Dr. L. N. Rao for kind encouragement.

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1. Iyengar, M. O. P., *New Phytologist*, 1932, **31**, 329-35.
2. Singh, R. N., *ibid.*, 1941, **40**, 170-82.

CHROMOSOME NUMBERS IN *SESBANIA* SPP.

Recently two notes[1,3] have been published in this *Journal* giving chromosome number counts in the Indian cultivated species of *Sesbania*. The notes showed that there was some discrepancy between the counts made by different observers. Further counts were made at the Agricultural College, Coimbatore, to find out if there was chromosome number variation within a single species of *Sesbania*. Either mitotic or meiotic chromosomes were counted in five varieties of *Sesbania*. Comparing the present results with previous records, the deductions are, (*a*) autopolyploidy occurs in *Sesbania aculeata*, and (*b*) *S. grandiflora* is probably constant in its chromosome number. The table given below brings out these points.

(*a*) The polyploid numbers in *S. aculeata* may be natural. Mr. Haque's new data[2] may be used to give this interpretation—the Andhra variety of *S. aculeata* is a diploid, and Benares and Coimbatore varieties are autopolyploids.

(*b*) Considering the general consistency in the genus, it is difficult to explain the count recorded by Krishnaswamy, *et al.*[1] In the pollen mother-cells of *S. grandiflora*, there is a considerable amount of secondary pairing and this feature will cause a reduction in the apparent number of bivalents counted at first metaphase. The present counts were made at diplotene, first anaphase, and at second telophase stages, in the P.M.C. in which stages the chromosomes are freer spatially.

Three varieties of *S. grandiflora* were grown at the Millet Breeding Station for this study. The varieties showed differences in vigour and rate of growth. The economic aspect of varietal differences will be studied and published later.

I am indebted to the Millet Specialist, Government of Madras, for facilitating and supervising this work.