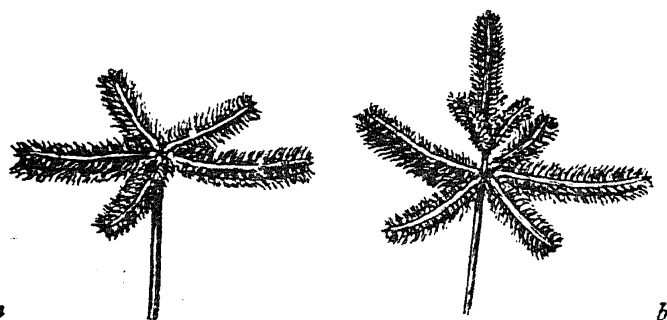


A SHORT NOTE ON A CASE OF DOUBLE-DIGITATE INFLORESCENCE IN *DACTYLOCTENIUM AEGYPTIUM* WILLD.

THE normal inflorescence of *Dactyloctenium aegyptium* Willd. is of digitately radiating spikes in a single whorl (Fig. a) the number of spikes varying up to 7 and rarely reduced to a solitary spike. But many plants of this species were observed carrying a second whorl with 1 to 4 spikes, on a short rachis above the first (Fig. b), in a field which was heavily



Single digitate (of 5 spikes-normal) (a)

Double digitate (the 2nd whorl of 3 unequal spikes) (b)

manured and had a standing crop of castor. Both the types of inflorescences with single digitate and double digitate spikes were present in one and the same plant in many cases. In a few, thumbs similar to those that are present in *Eleusine coracana* Gaertn., were also observed.

The progenies raised from the seeds of such plants in pots under laboratory conditions failed to exhibit either the freak of a double digitate inflorescence or that with the thumb. It is, therefore, presumed that the environment was responsible for the expression of those characters.

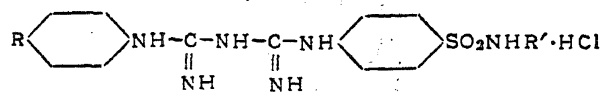
It is interesting to note in this connection that this species, *Dactyloctenium aegyptium*, is very variable in its inflorescence character in that the number of spikes may vary from one in poor alkaline soil to as many as 9, as observed by the authors at Krusadi—an island in the Gulf of Mannar, Ramnad District; the length of the spikes and their width ranged from 0.5 cm. to 4.5 cm. and 0.2 cm. to 0.8 cm. respectively. These are of interest from the ecological point of view.

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STUDIES IN ANTIMALARIALS: SULPHABIGUANIDE DERIVATIVES

IN a previous communication,<sup>1</sup> we have reported some sulphabiguanide derivatives of type A which have a tautomeric biguanide structure combined with well-known sulphonamide deri-

vatives. These compounds have now been tested for their suppressive antimalarial activity against *P. gallinaceum* in chicks and the results have been tabulated below.



... Type A

R = H, Cl, Pr, Me, etc., and R' = H, 2-thiazolyl and 2-pyrimidyl.

Suppressive antimalarial activity of "Sulphabiguanides"

(*P. gallinaceum* in chicks)

-, not active; +, slightly active; ++, active

No.	R	R'	Dosage in mgs. per 100 gms. body weight	Activity
1	Cl	H	6	-
			12	-
2	CH <sub>3</sub> O	H	6	-
			12	-
3	Br	2-thiazolyl	20	-
4	Cl	do	40	-
5	CH <sub>3</sub>	do	40	++
6	H	2-pyrimidyl	40	++
7	Cl	do	40	+
8	Br	do	20	-
9	CH <sub>3</sub> O	do	20	++
10	NO <sub>2</sub>	do	20	-

From the above results, it may be concluded that when the sulphonamido group is unsubstituted the compounds are inactive, while its substitution with pyrimidine ring gives compounds of considerable activity with higher dosages.

Recently Curd and Rose<sup>2</sup> have put forth an explanation for a possible mode of action of paludrine, wherein the activity is attributed to formation of metallic complexes (Chelate rings) with trace elements *in vivo* and thus depriving the parasite of its mineral requirements. It has been shown that metallic complexes are formed with considerable difficulty in the case of aryl-substituted biguanides,<sup>3,4</sup> and in fact N<sup>1</sup>- and N<sup>5</sup>-diaryl-substituted biguanides have been shown to be inactive as antimalarials.<sup>4</sup> Compounds of type A are also N<sup>1</sup>-N<sup>5</sup> diaryl-substituted biguanides, but their activity, when they are suitably substituted, may show that formation of a metallic complex alone is not responsible for activity and their anti-plasmodial action seems to depend upon the nature of the substituents on either end of a tautomeric biguanide structure.

Sulphamerazine and sulphamethazine are two new alkyl-substituted sulphadiazine derivatives which have shown good antimalarial activity.<sup>5,6</sup> In the light of the present finding it was thought of interest to prepare compounds of type B and C in order to study the effect of alkyl-substituents in the pyrimidine ring as regards their antimalarial activity.