

tion 2) (Found: C, 78.5; H, 6.1. $C_{20}H_{18}O_3$ requires C, 78.4; H, 5.9%).

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1. Jain, A. C., Lal, P. and Seshadri, T. R., *Tetrahedron*, 1970, 26, 1977.
2. — and Jain, S. M., *Ibid.* (In press).

3-ARYL-2-THIOACETYLHYDRAZINE-4-QUINAZOLONES AS ANTI-CONVULSANTS

ANTICONVULSANT and hypnotic activity exhibited by 2-methyl-3-*o*-tolyl-4-quinazolone^{1,2} and the ability of quinazolone hydrazides and hydrazines³ to show profound anticonvulsant activity led to the synthesis of some 3-aryl-2-thioacetyl hydrazine-4-quinazolones. The anticonvulsant activity possessed by these quinazolones was determined against pentylenetetrazol induced seizures.

3-Aryl-2-mercapto-4-quinazolones.—These were prepared according to method of Ghosh⁴ by refluxing an equimolar mixture of anthranilic acid and suitable aryl isothiocyanates.

cooling was filtered, dried and recrystallized from ethanol.

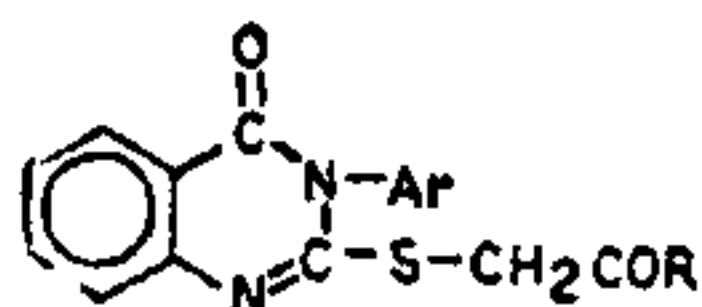
3-Aryl-2-thioacetylhydrazine-4-quinazolones.—These were synthesized by refluxing a solution of 3-aryl-2-thioethylacetate-4-quinazolones (0.01 mole) in absolute ethanol with 99-100% hydrazine hydrate (0.015 mole) for 12-15 hr. Removal of excess of solvent resulted the crude products which were recrystallized from ethanol.

Anticonvulsant activity—was determined⁵ by injecting quinazolones at a dose of 100 mg/kg intraperitoneally in 5% aqueous suspension of gum acacia to a group of 10 mice of either sex. Pentylenetetrazol (80 mg/kg) was injected 4 hr after the administration of quinazolones and the animals were observed for following 60 minutes for the occurrence of seizures. Animals devoid of even a threshold convulsion were considered protected.

As it is evident from Table I all quinazolones possessed anticonvulsant activity which was reflected by the protection observed against pentylenetetrazol induced seizures. Such a protection ranged from 10 to 70% where 3-(3',4'-dimethyl phenyl)-2-thioethylacetate-4-quinazolone was found to be most potent compound which exhibited 70% protection. These results have also indicated that

TABLE I

3-Aryl-2-substituted-4-quinazolones



Sl. No.	Ar	R	M.P. °C.	Yield %	Molecular formula	Found %	Calcd. %	Anticonvulsant activity %	
						N	N	Protection	Mortality after 24 hrs.
1	C ₆ H ₅	OC ₂ H ₅	114	68	C ₁₈ H ₁₆ N ₂ O ₃ S	8.45	8.23	40	30
2	C ₆ H ₅	NHNH ₂	190	62	C ₁₆ H ₁₄ N ₄ O ₂ S	16.82	17.17	60	20
3	2-CH ₃ C ₆ H ₄	OC ₂ H ₅	108	65	C ₁₉ H ₁₈ N ₂ O ₃ S	8.06	7.90	40	10
4	2-CH ₃ C ₆ H ₄	NHNH ₂	185	58	C ₁₇ H ₁₆ N ₄ O ₂ S	16.68	16.46	50	30
5	3-CH ₃ C ₆ H ₄	OC ₂ H ₅	98	68	C ₁₉ H ₁₈ N ₂ O ₃ S	7.74	7.90	50	20
6	3-CH ₃ C ₆ H ₄	NHNH ₂	135	60	C ₁₇ H ₁₆ N ₄ O ₂ S	16.88	16.46	10	70
7	4-CH ₃ C ₆ H ₄	OC ₂ H ₅	122	70	C ₁₉ H ₁₈ N ₂ O ₃ S	7.85	7.90	50	30
8	4-CH ₃ C ₆ H ₄	NHNH ₂	148	4	C ₁₇ H ₁₆ N ₄ O ₂ S	16.25	16.46	30	60
9	3,4-(CH ₃) ₂ C ₆ H ₃	OC ₂ H ₅	104	66	C ₂₀ H ₂₀ N ₂ O ₃ S	7.52	7.60	70	Nil
10	3,4-(CH ₃) ₂ C ₆ H ₃	NHNH ₂	156	62	C ₁₈ H ₁₈ N ₄ O ₂ S	16.13	15.81	20	80

3-Aryl-2-thioethylacetate-4-quinazolones.—An equimolar mixture of 3-aryl-2-mercapto-4-quinazolone, ethyl chloroacetate and anhydrous potassium carbonate in dry acetone was refluxed for 15-18 hr. Reaction mixture was filtered and the excess of acetone was removed by distillation under reduced pressure. The solid mass which separated out on

increase in anticonvulsant activity of these quinazolones was found to correspond with simultaneous decrease in the mortality observed in pentylenetetrazol treated animals after the period of 24 hr.

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1. Gujral, M. L., Saxena, P. N. and Tewari, R. S., *Ind. J. Med. Res.*, 1955, **43**, 637.
2. —, Sareen, K. N. and Kohli, R. P., *Ibid.*, 1957, **45**, 207.
3. Kohli, R. P., Gupta, T. K., Parmar, S. S. and Arora, R. C., *Jap. J. Pharmacol.*, 1967, **17**, 409.
4. Ghosh, T. N., *J. Ind. Chem. Soc.*, 1930, **7**, 931.
5. Parmar, S. S., Dwivedi, C., Chaudhari, A. and Gupta, T. K., *J. Med. Chem.*, 1972, **15**, 99.

PLANT FOSSILS FROM THE KUARBET, PACHHAM ISLAND, KUTCH

THE note deals with plant micro- and megafossils recorded from the Kuar Bet Beds¹ exposed in Kuar Bet, Pachham Island, Kutch. The flora observed has an important bearing on the age of the Beds.

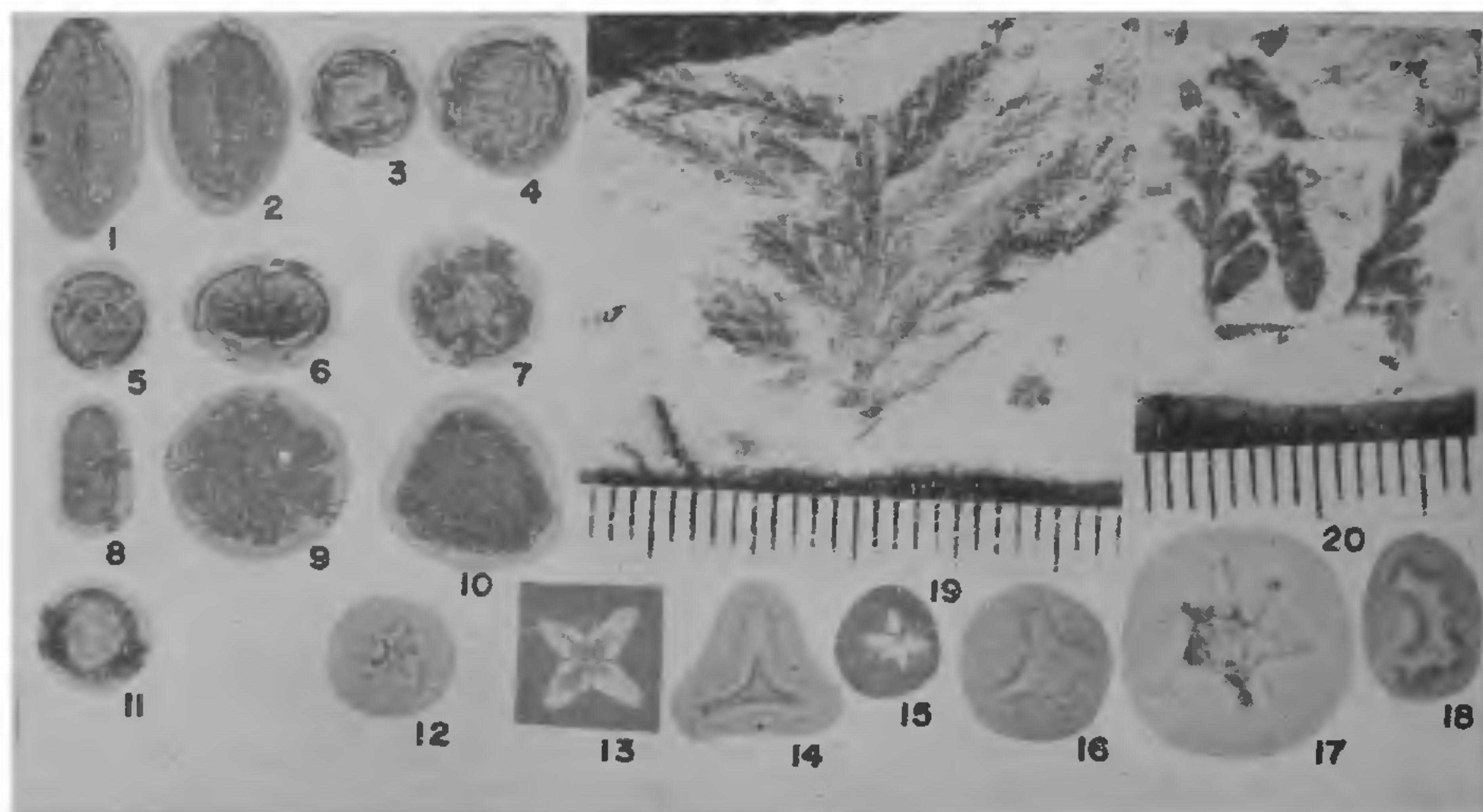
Palynofossil flora recorded from the beds exposed south of the Kuar Bet Hill Point 113, consists of following important angiospermic pollen taxa: *Scabramonocolpites longicolpus* Mathur (Fig. 1);

None of the Mesozoic forms could be observed.

Nannofossils are observed in the samples collected from the Hill Point 144. Following forms are the main constituent of the assemblage: *Discoaster bramletti* Martini (Fig. 12); *D. cf. cruciformis* Martini. (Fig. 13, under Cross Nicols); *Discoaster* spp. (Fig. 15, under Cross Nicols and Fig. 14); *Marthasterites* sp. 1 Sales (Fig. 16); *Marthasterites* sp. 2 Sales. (Fig. 17); *Corannulus germanicus* Stradner. (Fig. 18).

Reasonably well preserved plant megafossils were collected from the lowermost beds exposed at the Hill Point 144. Two ferns, namely, *Onychiopsis* sp. cf. *O. psilotoides* (Stokes and Webb) Ward. (Fig. 19) and *Sphenopteris* sp. (Fig. 20) are recognised.

Authentic records of angiospermic pollen are only known from the Middle Albian and the younger rocks. Angiospermic pollen taxa recorded here, have earlier been reported from the Paleocene beds of Kutch², Assam³ and Texas⁴ and from the Lower-Middle Eocene rocks of Kutch^{5,6}, Assam^{7,8} and Rajasthan⁹.



FIGS. 1-20

Psilatricolpites psilatus Habib, (Fig. 2); *Tricolpites* spp. (Figs. 3 and 4); *T. minutus* Sah and Kar (Fig. 5); *T. levis* Sah and Datta (Fig. 6); *Retitricolporites* Hammen and Wymstra (Fig. 7); *Umbelliferoipollenites ovatus* Venkat. and Kar (Fig. 8); *Retioctacolpites medicolpus* Mathur (Fig. 9); *Proteacidites triangulus* Mathur (Fig. 10); *Polyporina* Potonie (Fig. 11).

Discoaster bramletti is reported from the Eocene beds¹⁰ and *Corannulus germanicus* from the Upper Eocene rocks¹¹. Species of genus *Marthasterites* observed, closely resemble *Marthasterites* sp. 1 and sp. 2 reported from the Upper Paleocene to Middle Eocene rocks respectively of Africa¹². It is of interest to note that the known range of genus *Discoaster* Tan is from Upper Paleocene to Pliocene¹³.