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CHEMOTAXONOMY OF *CAESALPINIA*

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THE present note deals with the distribution of different chemical compounds in ten species of *Caesalpinia* and their identification and affinities on the basis of the same.

Standard phytochemical tests on *Caesalpinia bonducella* Flem., *C. cacalaco* Humb., *C. coriaria* Willd., *C. digyna* Rottl., *C. ferrae* Mart., *C. gledetschioides* Hook., *C. pulcherrima* Swartz., (Red and yellow flowers), *C. sappan* Linn., *C. sepiaria* Roxb., and *C. tortuosa* Roxb., have been carried out both with the fresh material and 80% ethanolic extracts to find out the presence of various chemical constituents in them.

Uniformly negative results are obtained for alkaloids, cyanogenic glycosides (HCN test A), indoles, lignans and saponins and uniformly positive results for simple phenols, similar flavonoids (Shinoda test), syringyl radicals (Maule test), and triterpenoids/steroids (Liebermann Burchard test). However, the

1. Juglone present	<i>C. sappan</i>
1. Juglone absent:	
2. Aucubin compounds present	<i>C. coriaria</i>
2. Aucubin compounds absent	
3. Catechol tannins present:	
4. Methylene dioxy compounds present	<i>C. pulcherrima</i> (red)
4. Methylene dioxy compounds absent	<i>C. pulcherrima</i> (yellow)
3. Catechol tannins absent:	
5. Leucoanthocyanins present:	
6. Anthraquinones present	<i>C. gledetschioides</i>
6. Anthraquinones absent:	
7. Tannins present	<i>C. cacalace</i>
7. Tannins absent	<i>C. sepiaria</i>
5. Leucoanthocyanins absent	
8. Syringaldehyde doubtful	<i>C. bonducella</i>
8. Syringaldehyde absent:	
9. Steroids present	<i>C. digyna</i>
9. Steroids absent:	
10. Tannins present	<i>C. ferrae</i>
10. Tannins absent	<i>C. tortuosa</i>

various species of *Caesalpinia*, stand distinct on account of the possession of one or more unique chemical characters, which are not shared by all. Thus the anthraquinones are found in *C. gleditschioides*; aucubin compounds (Ehrlich test) in *C. coriaria*; catechol tannins (HCl/Methanol or Isenberg Buchnan's test) in *C. coriaria* besides both the varieties of *C. pulcherrima*; Juglone, a rare naphthoquinone in *C. sappan*; leucoanthocyanins (leucoanthocyanin test A) in *C. cacalaco*, *C. gleditschioides*, *C. sappan* and *C. sepiaria*; and methylene dioxy functional compounds (Labat test) in *C. bonducella* and red flower variety of *C. pulcherrima*. The activity of polyphenolase as measured in terms of cigarette and hot water tests is strongly positive in *C. bonducella* and *C. digyna*. The presence of steroids alone as indicated by Salkowski reaction is recorded in *C. cacalaco*, *C. coriaria*, *C. digyna*, *C. gleditschioides* and *C. sappan*. With the development of green colour in the lignified elements, it is inferred that syringaldehyde (syringin test A) might be present in *C. bonducella* and both the varieties of *C. pulcherrima*, while in others it is proved beyond doubt about its absence. *C. cacalaco*, *C. coriaria*, *C. ferrae* and *C. gleditschioides* are found to be tanniferous taxa.

An artificial key, based on the distribution pattern of some of the above chemical characters is presented below for the identification of the taxa of the present study.

Despite the fact that each of the present species of *Caesalpinia* is distinct in possession of some chemical characters there are several overlapping characters, common to them. A numerical assessment² of such similarities is indicative of close phyletic relationship among them.

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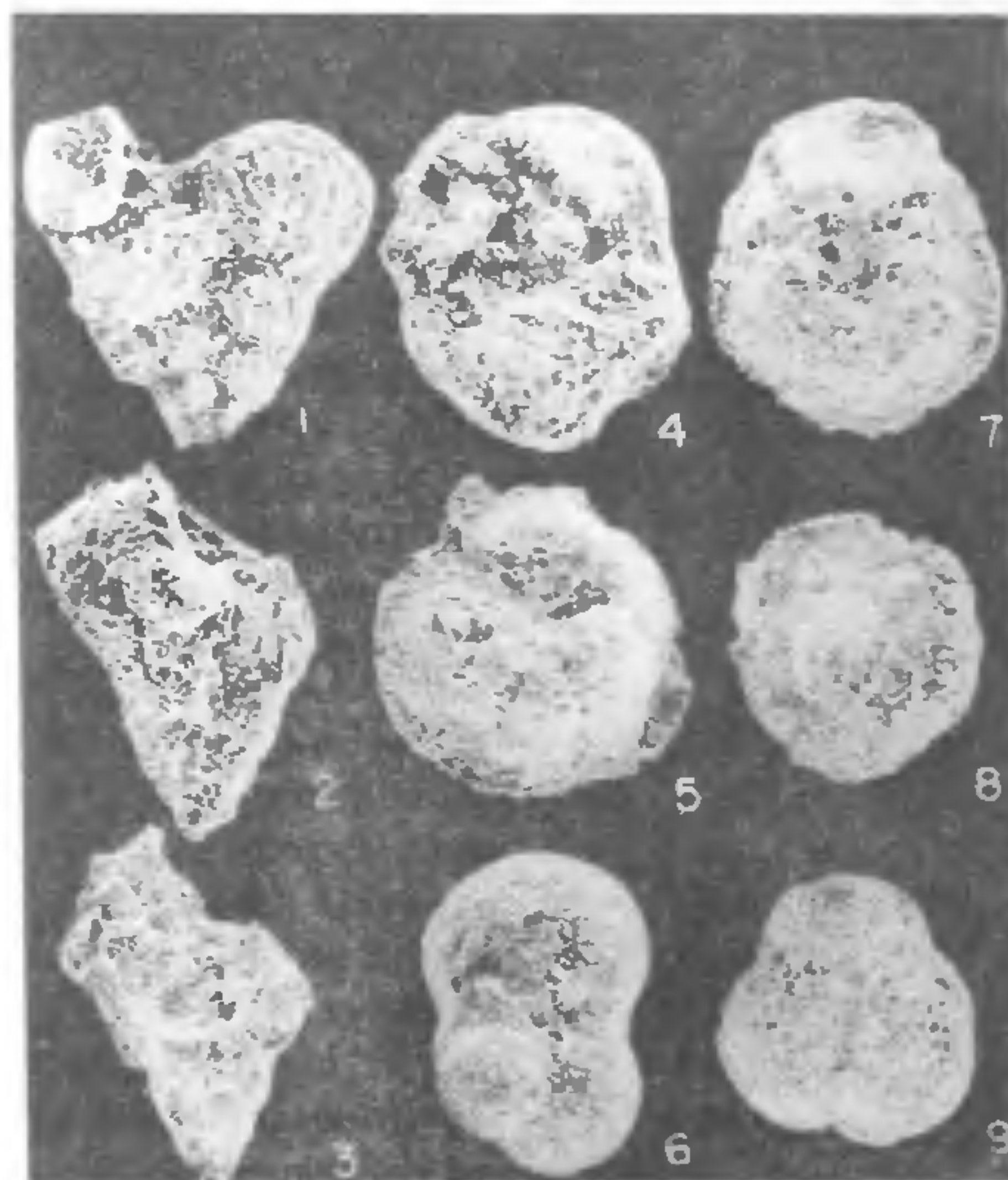
ON THE AGE OF THE EJECTED MATERIAL FROM MUD VOLCANO OF BARATANG ISLAND, ANDAMAN.

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THOUGH the mud volcanoes of Ramri and Cheduba islands were known from the last century¹, Poddar² was the first to report mud volcanoes from the Baratang island of the Andaman group of islands and he examined the ejected material for possibility of hydrocarbon around four of them near Wrafter's Creek and considered sediments of south Baratang probably of Eocene and Oligocene age.

More recently Banerjee³, studying these mud volcanoes, especially of Baratang island considered them as associated presumably, with Baratang Formation (Upper Cretaceous—Eocene). The present authors have visited the two mud volcanoes in south Baratang



Figures 1–9. SE microphotographs. 1. *Heterohelix striata* (Ehrenberg), 2. *Heterohelix* sp., 3. *Ventilabrella glabrata* Cushman, 4. *Globotruncana monmouthensis* Olsson, 6. *Globigerinoides quadrilobatus* (d'Orbigny) *trilobus* Reuss, 9. *Globoquadrina venezuelana* (Hedberg) (Magnification $\times 266$).