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ศูนย์วิทยทรัพยากร  
จุฬาลงกรณ์มหาวิทยาลัย





**APPENDIX**

ศูนย์วิทยทรัพยากร  
จุฬาลงกรณ์มหาวิทยาลัย

## COMPOSITION OF LIMESTONES IN THIN SECTIONS

**Location : TCM 94-1**

Remark : Pha Mo

Allochems 60%

- Fusulinids 10%
- Shell fragments 10%
- Peloids 20%
- Pseudo-algae 10%
- Crinoid debris 5%
- Smaller foraminifers and calcispheres 5%

Matrix : Carbonate mud 15%

Cement : Calcareous cement 25%

**Location : TCM 94-2**

Remark : Pha Mo Noi

Allochems 60%

- Fusulinids 15%
- Shell fragments 10%
- Peloids 15%
- Pseudo-algae 10%
- Crinoid debris 5%
- Smaller foraminifers 5%

Matrix : Carbonate mud 15%

Cement : Calcareous cement 25%

**Location : TCM 94-3**

Remark : Foot of Phu Khao near Pha Mo Noi (Grid reference 131367)

Sample no. : TCM 94-3-1

Allochems 70 %

- Fusulinids 20%
- Pseudo-algae 20%
- Crinoid debris 15%
- Smaller foraminifers 5%
- Shell fragments 10%

Matrix : Carbonate mud 25%

Cement : Sparry calcite 5%

Sample no. : TCM 94-3-2

Allochems 70%

- Fusulinids 15%
- Pseudo-algae 20%
- Shell fragments 15%
- Crinoid debris 15%
- Smaller foraminifers 5%

Matrix : Carbonate mud 25%

Cement : Sparry calcite 5%

Sample no. : TCM 94-3-4

Allochems 60%

- Fusulinids 10%
- Pseudo-algae 20%
- Shell fragments 20%
- Smaller foraminifers 5%
- Crinoid fragments 5%

Matrix : Carbonate mud 35%

Cement : Sparry calcite 5%

Sample no. : TCM 94-3-5

Allochems 65%

- Fusulinids 15%
- Pseudo-algae 20%
- Shell fragments 15%
- Smaller foraminifers 10%
- Crinoid fragments 5%

Matrix : Carbonate mud 20%

Cement : Sparry calcite 15%

Sample no. : TCM 94-3-6

Allochems 65%

- Fusulinids 15%
- Pseudo-algae 20%
- Calcispheres 10%
- Shell fragments 10%
- Crinoid debris 5%
- Smaller foraminifers 5%

Matrix : Carbonate mud 5%

Cement : Sparry calcite 30%

ศูนย์ทรัพยากร  
จุฬาลงกรณ์มหาวิทยาลัย

**Location : TCM 94-4**

Remark : At Km 30+050 along Loei-Na Duang road (Grid reference 139343)

Sample no. : TCM 94-4-1

Allochems 80%

- Fusulinids 10%
- Pseudo-algae 30%
- Calcispheres 20%
- Shell fragments 20%
- Crinoid debris 5%
- Smaller foraminifers 5%

Matrix : Carbonate mud 10%

Cement : Sparry calcite 10%

Sample no. : TCM 94-4-2

Allochems 65%

- Fusulinids 10%
- Pseudo-algae 35%
- Shell fragments 10%
- Crinoid debris and calcispheres 5%
- Smaller foraminifers 5%

Matrix : Carbonate mud 25%

Cement : Sparry calcite 10%

Sample no. : TCM 94-4-3

Allochems 50%

- Fusulinids 15%
- Pseudo-algae 10%
- Calcispheres 5%
- Shell fragments 10%

- Crinoid debris 5%
  - Smaller foraminifers 5%
- Matrix : Carbonate mud 20%
- Cement : Sparry calcite 30%

Sample no. : TCM 94-4-4

Allochems 50%

- Fusulinids 15%
- Pseudo-algae 15%
- Shell fragments 10%
- Calcispheres 5%
- Crinoid debris and smaller foraminifers 5%

Matrix : Carbonate mud 40%

Cement : Sparry calcite 10%

Sample no. : TCM 94-4-5

Allochems 45%

- Fusulinids 15%
- Pseudo-algae 10%
- Calcispheres 5%
- Shell fragments 5%
- Crinoid debris 5%
- Smaller foraminifers 5%

Matrix : Carbonate mud 45%

Cement : Sparry calcite 10%

Sample no. : TCM 94-4-6 (covered TCM 94-4-6-1 and TCM 94-4-6-2)

Allochems 45%

- Fusulinids 10%
- Pseudo-algae 20%

- Shell fragments 5%
- Crinoid debris 5%
- Smaller foraminifers 5%

Matrix : Carbonate mud 45%

Cement : Sparry calcite 10%

Sample no. : TCM 94-4-7 (covered TCM 94-4-7-1 to TCM 94-4-7-5)

Allochems 40%

- Fusulinids 10%
- Pseudo-algae 15%
- Shell fragments 5%
- Crinoid debris 5%
- Smaller foraminifers 5%

Matrix : Carbonate mud 55%

Cement : Sparry calcite 5%

Sample no. : TCM 94-4-8 (covered TCM 94-4-8-1 to TCM 94-4-8-4)

Allochems 35%

- Fusulinids 10%
- Pseudo-algae 10%
- Shell fragments 5%
- Crinoid debris 5%
- Smaller foraminifers 5%

Matrix : Carbonate mud 60%

Cement : Sparry calcite 5%

**Location : TCM 94-5**

Remark : Along the road from Ban Na Din Dam to Ban Nam Suai Tha Sawan,  
(Grid reference 028313)

Grians 40%

- Micritic limestones 15%
- Fossiliferous limestones 25%

Matrix : 30%

Cement : Calcareous cement 30%

**Location : TCM 94-6**

Remark : Along the road from Ban Na Din Dam to Ban Nam Suai Tha Sawan,  
(Grid reference 054312)

The rock is dolomitic limestone. It contains 100% sparry calcite.

**Location : TCM 94-7**

Remark : Along the road from Ban Na Din Dam to Ban Nam Suai Tha Sawan,  
(Grid reference 055309)

Allochems 25%

- Shell fragments 5%
- Crinoid debris 5%
- Coral 10%
- Pseudo-algae 5%

Matrix : Carbonate mud 65%

Cement : Calcareous cement 10%



**Location : TCM 94-8**

Remark : Along the road from Ban Na Din Dam to Ban Nam Suai Tha Sawan,  
(Grid reference 069298)

Allochems 75%

- Fusulinids 40%
- Shell fragments 5%
- Smaller foraminifers 10%
- Peloids 25%

No matrix

Cement : Calcareous cement 20%

**Location : TCM 94-9**

Remark : Wat Sunantharam, Ban Nam Suai Tha Sawan (Grid reference 114284)

Sample no. : TCM 94-9-1

No allochems

Matrix : Carbonate mud 90%

Cement : Calcareous cement 10%

Sample no. : TCM 94-9-2

No allochems

Matrix : Carbonate mud 95%

Cement : Calcareous cement 5%

Sample no. : TCM 94-9-3

No allochems

Matrix : Carbonate mud 90%

Cement : Calcareous cement 10%

Sample no. : TCM 94-9-4

No allochems

Matrix : Carbonate mud 95%

Cement : Calcareous cement 5%

Sample no. : TCM 94-9-5

Allochems : Less than 10%

Matrix : Carbonate mud 80%

Cement : Calcareous cement 10%

Sample no. : TCM 94-9-9

No allochems

Matrix : Carbonate mud 95%

Cement : Calcareous cement 5%

Sample no. : TCM 94-9-10

Allochems : Less than 10%

Matrix : Carbonate mud 80%

Cement : Calcareous cement 10%

Sample no. : TCM 94-9-11

Allochems : Less than 10%

Matrix : Carbonate mud 70%

Cement : Calcareous cement 20%

Sample no. : TCM 94-9-13

Allochems 85%

- Shell fragments 40%

- Fusulinids 10%

- Rock fragments 30%

- Smaller foraminifers 5%

Matrix : Less than 10% of carbonate mud

Cement : Calcite cement 5%

Sample no. : TCM 94-9-15

Allochems 40%

- Shell fragments 15%

- Pseudo-algae 15%

- Smaller foraminifers 5%

- Crinoid debris 5%

Matrix : Carbonate mud 55%

Cement : Sparry calcite cement 5%

Sample no. : TCM 94-9-16

Allochems 70%

- Shell fragments 30%

- Fusulinids 20%

- Smaller foraminifers 5%

- Calcispheres 5%

- Crinoid debris 10%

Matrix : Less than 10% of carbonate mud

Cement : Calcite cement 20%

Sample no. : TCM 94-9-17

Allochems 75%

- Shell fragments 35%

- Fusulinids 10%

- Crinoid debris 20%

- Smaller foraminifers 10%

Matrix : Less than 10% of carbonate mud

Cement : Calcareous cement 15%

Sample no. : TCM 94-9-19

Allochems 85%

- Shell fragments 35%
- Fusulinids 10%
- Crinoid debris 30%
- Smaller foraminifers 10%

Matrix : Less than 10% of carbonate mud

Cement : Sparry calcite cement 5%

Sample no. : TCM 94-9-20

Allochems :

- Shell fragments 90%

Matrix : Carbonate mud 5%

Cement : Sparry calcite cement 5%

Sample no. : TCM 94-9-21

This sample is two rock types. They are biomicritic wackestone and grainstone.

1. Composition of biomicritic wackestone in thin section :

Allochems 50%

- Pseudo-algae 20%
- Shell fragments 10%
- Fusulinids 5%
- Smaller foraminifers 5%
- Crinoid debris 5%
- Peloids 5%

Matrix : Carbonate mud 40%

Cement : Calcite cement 10%

2. Composition of biomicritic wackestone in thin section :

Allochems 70%

- Pseudo-algae 35%
- Shell fragments 15%
- Fusulinids 5%
- Smaller foraminifers 5%
- Crinoid debris 5%
- Peloids 5%

No matrix

Cement : Calcite cement 30%

Sample no. : TCM 94-9-22

Allochems 85%

- Shell fragments 20%
- Fusulinids 20%
- Crinoid debris 15%
- Unidentified fragments 10%
- Chert 20%

Matrix : Less than 10% of carbonate mud

Cement : Calcite cement 5%

Sample no. : TCM 94-9-23

Allochems 60%

- Shell fragments 30%
- Crinoid debris 10%
- Pseudo-algae 10%
- Smaller foraminifers 10%

Matrix : Carbonate mud 30%

Cement : Sparry calcite cement 10%

Sample no. : TCM 94-9-24

Allochems 80%

- Shell fragments 25%
- Fusulinids and smaller foraminifers 5%
- Crinoid debris 25%
- Unidentified fragments 25%

Matrix : Less than 10% of carbonate mud

Cement : Siliceous cement 10%

Sample no. : TCM 94-9-25

Allochems 70%

- Shell fragments 20%
- Fusulinids 10%
- Crinoid debris 20%
- Unidentified fragments 20%

Matrix : Less than 10% of carbonate mud

Cement : Calcite cement 20%



Sample no. : TCM 94-9-26

Allochems :

- Shell fragments 85%

Matrix : Carbonate mud 5%

Cement : Calcareous cement 10%

Sample no. : TCM 94-9-27

Allochems 60%

- Shell fragments 20%
- Pseudo-algae 25%
- Smaller foraminifers and crinoid debris 10%
- Calcispheres 5%

Matrix : Carbonate mud 30%

Cement : Sparry calcite 10%

Sample no. : TCM 94-9-28

Allochems 80%

- Oolites 30%
- Shell fragments 10%
- Pseudo-algae 20%
- Smaller foraminifers 10%
- Unidentified fragments 10%

No matrix

Cement : Calcareous cement 20%

Sample no. : TCM 94-9-29

Allochems 60%

- Pseudo-algae 25%
- Shell fragments 10%
- Crinoid debris 5%
- Smaller foraminifers 10%
- Unidentified fragments 10%

Matrix : Carbonate mud 30%

Cement : Calcareous cement 10%

Sample no. : TCM 94-9-30

Allochems 60%

- Fusulinids 25%
- Peloids 20%
- Shell fragments 5%
- Pseudo-algae 5%
- Smaller foraminifers 5%

Matrix : Carbonate mud 30%

Cement : Calcareous cement 10%

**Location : TCM 94-10**

Remark : At Km 15+080 along highway from Amphoe Wang Saphung to  
Changwat Nong Bua Lamphu

In the lower part :

Allochems 50%

- Fusulinids 20%
- Shell fragments 10%
- Pseudo-algae 5%
- Calcispheres 5%
- Crinoid debris 5%
- Smaller foraminifers 5%

Matrix : Carbonate mud 45%

Cement : Calcareous cement 5%

In the middle part :

Allochems 50%

- Pseudo-algae 30%
- Shell fragments 10%
- Crinoid debris 5%
- Smaller foraminifers 5%

Matrix : Carbonate mud 40%

Cement : Calcareous cement 10%



In the upper part :

Allochems 30%

- Fusulinids 10%
- Pseudo-algae and calcispheres 5%
- Shell fragments 5%
- Crinoid debris 5%
- Smaller foraminifers 5%

Matrix : Carbonate mud 60%

Cement : Calcareous cement 10%

**Location : TCM 94-11**

Remark : At Km 17+080 along Amphoe Wang Saphung-Nong Bua Lamphu highway (Grid reference 118167)

Sample no. : TCM 94-11-1

Allochems 60%

- Peloids 25%
- Calcispheres 20%
- Shell fragments 5%
- Smaller foraminifers 5%
- Fusulinids 5%

Matrix : Carbonate mud 30%

Cement : Sparry calcite 10%

Sample no. : TCM 94-11-2

Allochems 55%

- Peloids 30%
- Calcispheres 10%
- Shell fragments 5%
- Smaller foraminifers 5%

- Fusulinids 5%

Matrix : Carbonate mud 35%

Cement : Sparry calcite 10%

Sample no. : TCM 94-11-3

Allochems 30%

- Calcispheres 10%

- Pseudo-algae 5%

- Shell fragments 5%

- Smaller foraminifers 5%

- Fusulinids 5%

Matrix : Carbonate mud 55%

Cement : Sparry calcite 15%

Sample no. : TCM 94-11-6

Allochems 20%

- Fusulinids

- Pseudo-algae

- Calcispheres

- Shell fragments

- Smaller foraminifers

Matrix : Carbonate mud 75%

Cement : Sparry calcite 5%

Sample no. : TCM 94-11-7

Allochems 60%

- Peloids 30%

- Calcispheres 10%

- Shell fragments 10%

- Fusulinids 5%

- Smaller foraminifers 5%

Matrix : Carbonate mud 30%

Cement : Sparry calcite 10%

Sample no. : TCM 94-11-9

Allochems 45%

- Shell fragments 20%

- Fusulinids 10%

- Smaller foraminifers 10%

- Calcispheres 5%

Matrix : Carbonate mud 50%

Cement : Sparry calcite 5%

Sample no. : TCM 94-11-10

Allochems 45%

- Fusulinids 5%

- Calcispheres 15%

- Shell fragments 10%

- Pseudo-algae 10%

- Smaller foraminifers 5%

Matrix : Carbonate mud 40%

Cement : Sparry calcite 15%

Sample no. : TCM 94-11-14

Allochems 50%

- Fusulinids 10%

- Shell fragments 15%

- Pseudo-algae 15%

- Calcispheres 5%

- Smaller foraminifers 5%

Matrix : Carbonate mud 40%

Cement : Sparry calcite 10%

Sample no. : TCM 94-11-15

Allochems 25%

- Fusulinids 15%

- Shell fragments 10%

Matrix : Carbonate mud 55%

Cement : Sparry calcite 20%

Location : TCM 94-12

Remark : At Km 17+080 along Amphoe Wang Saphung-Nong Bua Lamphu  
highway (Grid reference 118166)

Grains : 30%

- Micritic limestone 10%

- Fossiliferous limestone 10%

- Peloids 10%

Matrix : Carbonate mud 30%

Cement : Calcareous cement 40%

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## BIOGRAPHY

Miss Titima Charoentirat was born in Changwat Nakhonpathom on July 8, 1971. In 1993, she graduated with B. Sc. degree in Geological Sciences from Chiang Mai University. At present, she is studying the M. Sc. programme in Geology at Chulalongkorn University.



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