Petrography and Depositional Environment of Sedimentary Rocks at Ban Phai Ngam, Mueang Mai Subdistrict, Chae Hom District, Lampang Province

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ABSTRACT

At Ban Phai Ngam, Mueang Mai Subdistrict, Chae Hom District, Lampang Province, abundant ammonoid fossils have been documented. To constrain the depositional environment of the associated sedimentary succession, representative rock samples were collected for detailed petrographic analysis and lithological classification. The results show that the rock succession consists of sandstone interbedded with limestone, and sandstone interbedded with shale. The sediments display grading from coarse to fine grain sizes in several sequences. Petrographic examination indicates that the sandstones are lithic dominated, with subordinate quartz and plagioclase, suggesting a volcanogenic source. The limestones are characterized by abundant carbonate grains and bioclasts, including crinoid fragments. Shale intervals also contain diverse fossil assemblages, such as molluscan shells, bryozoans, and crinoids. These sedimentological and paleontological characteristics indicate deposition in a shallow-marine setting along a continental shelf and were influenced by volcanic activity.

STUDY AREA

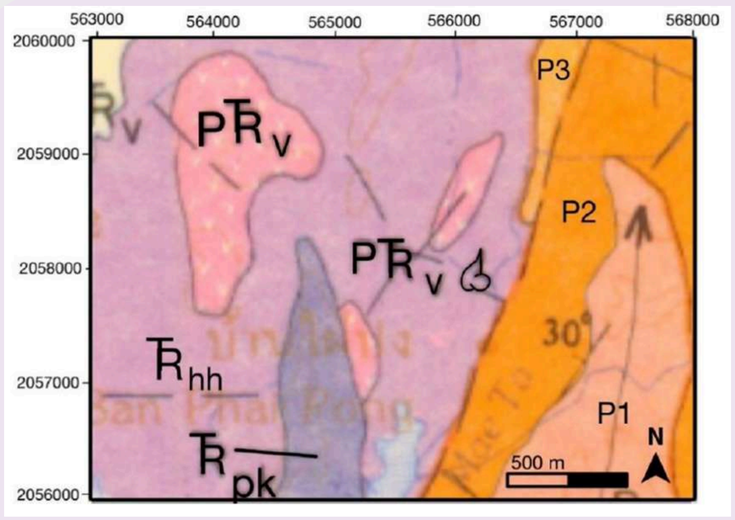


Fig. 1 Geological map of Ban Phai Ngam, Lampang Province

- Quartzite, tuffaceous sandstone, shale and siltstone Age : Triassic
- Limestone, thine-bedded to massive, oolith, oncolith fossilifereous Age : Triassic
- Volcanic rocks : rhyolite, andesite Age : Triassic
- Black shale, gray sandstone,dark gray mudstone and gray ;imestone with chert nodule Age : Permian
- Massive limestone, calcareous shale and mudstone Age : Permian
- Phyllite, sandstone, siltstone, quartzite, agglomerate and tuff Age : Permian

OBJECTIVE

- To study the lithology and classify the sedimentary rocks in the study area.
- To interpret the depositional environment of the sedimentary rocks in the study area

CONCLUSION

Petrographic analysis under a microscope shows that the sediment grains are graded from coarse to fine. The framework grains are mainly composed of rock fragments, followed by quartz and plagioclase. These sedimentological and paleontological characteristics indicate deposition in a shallow-marine setting along a continental shelf and were influenced by volcanic activity.

MEDTHODOLOGY

1. Field Study
2. Preparing the rock samples to analyze in the laboratory
3. Studying the thin sections under the polarizing miroscope
4. Study of mineral composition and lecture
5. Sedimentary rock classification



Fig. 2 Field Study at amnonoid sites

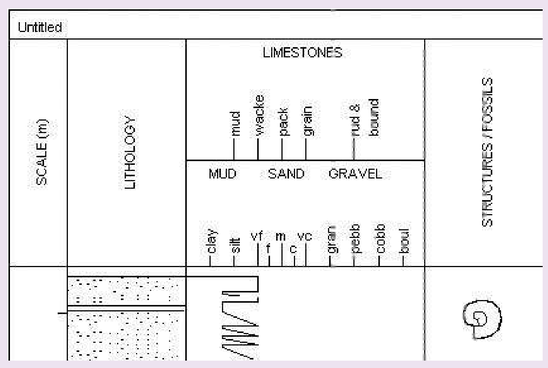


Fig. 3 Stratigraphic log of ammonoid sites

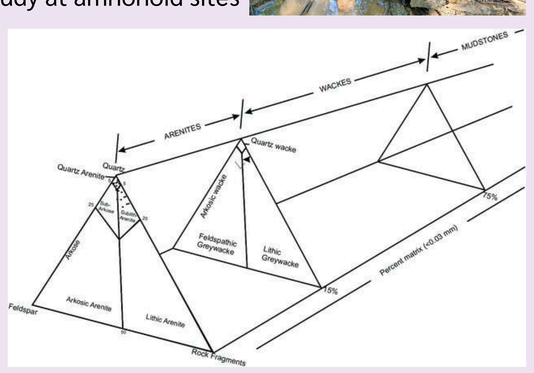


Fig. 4 Classification of sandstones (Pettijohn et al, 1973).

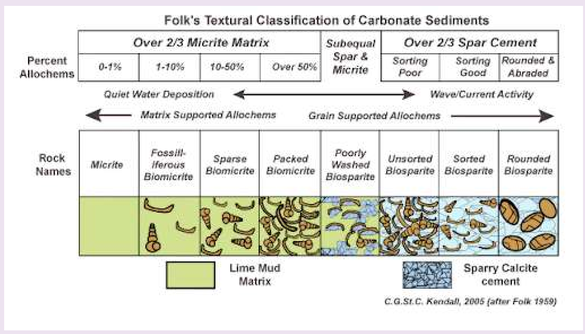


Fig. 5 Classification of Carbonate Rocks (Folk, 1962).

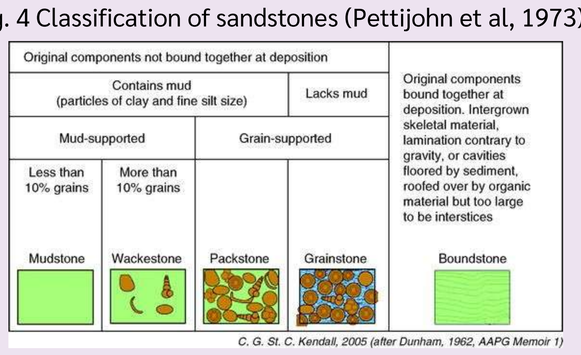


Fig. 6 Classification of Carbonate Rocks (Dunham , 1973).

RESULT

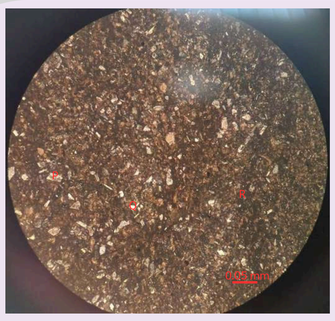


Fig. 7 PN-1 Lithic Wacke

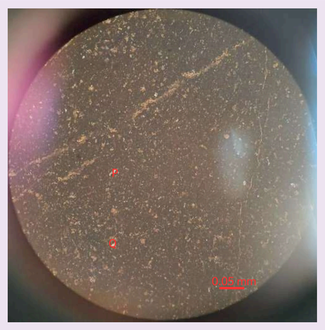


Fig. 8 PN-2 Sandy Mudstone

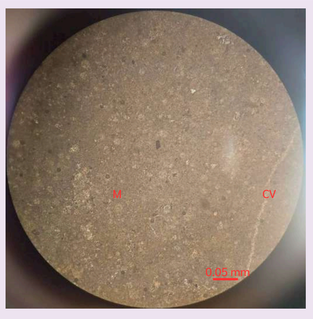


Fig. 9 PN-6 Sparse biomicrite

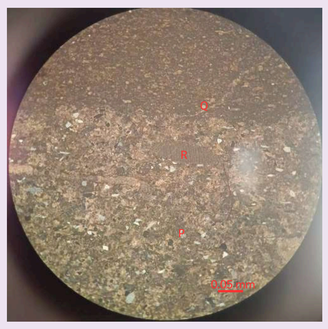


Fig. 10 PN-10 Lithic Wacke

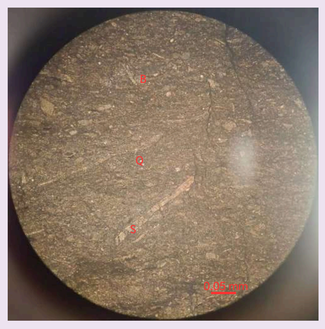


Fig. 11 PN-14 Mudstone

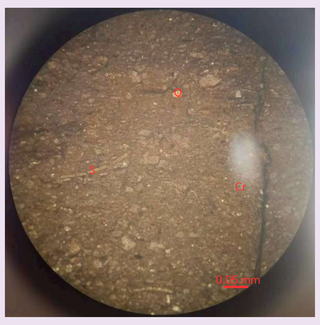


Fig. 12 PN-15 Mudstone

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