MORPHOLOGY OF FORAMINIFERA FOSSIL IN HALANG FORMATIONS, CIDORA VILLAGE, LUMBIR DISTRICT, BANYUMAS DISTRICT, CENTRAL JAVA PROVINCE

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ABSTRACT

The Halang Formation in the Cidora area and its surroundings has abundant and quite diverse fossil deposits with benthic and planktonic foraminifera associations. This study aims to identify the types of species that make up the main abundance of rocks in the Cidora area and its surroundings. The object of analysis was carried out using the descriptive-analysis method, namely describing the results of field data and classifying the abundant species. Based on the analysis of the Paleontology laboratory, abundant fossil groups were found in the form of planktonic foraminifera with the types Globorotalia tumida, Sphaeroidinella subdehiscens, Globorotalia multicamerata, Orbulina universa. The group of benthic foraminifera fossils are abundant with the types Lagena laevis, Pyrgo lucernula, Nodosaria inflexa, Bulimina striata. Determination of the morphology of foraminifera fossils is based on the number of chambers, the type of opening and the composition of the sutures, to the decoration on the shell.

Keywords: Halang Formation, fossil morphology, planktonic foraminifera, bentonic foraminifera.

1 INTRODUCTION

The South Serayu Basin has the characteristics of deep-sea sediment deposits, one of which is the Halang Formation. Halang Formation sediment deposits have a fairly high level of carbonate due to the high content of marine biota, including foraminifera. The Foraminifera contained in the Halang Formation are planktonic foraminifera and benthic foraminifera which consist of various species. Planktonic foraminifera, namely foraminifera that have a way of life floating in sea waters, cannot move or can move slightly and go with the current. Planktonic foraminifera are used to determine the relative ages of sedimentary rock layers [1].

Benthic foraminifera are foraminifera that have a way of life that attaches to the seabed, has a place to live that is spread from shallow waters to the seabed. Benthic foraminifera is used as a marker of depositional environment and a basis for horizontal stratigraphic correlation [1].

Foraminifera content in the samples taken in the study area are foraminifera that have been transformed into fossils. Planktonic foraminifera and benthic foraminifera with shell morphology that can describe the conditions of depositional environment formation through the abundance of fossil content in the study area [2].

2 METHODOLOGY

The research method was carried out in four stages, namely collecting literature data as a reference source, followed by collecting field data, the third stage was laboratory analysis of foraminifera microfossils, laboratory analysis methods identified the type of fossil shell morphology from each research location and finally making a report research.as shown in **Error! Reference source not found.**.

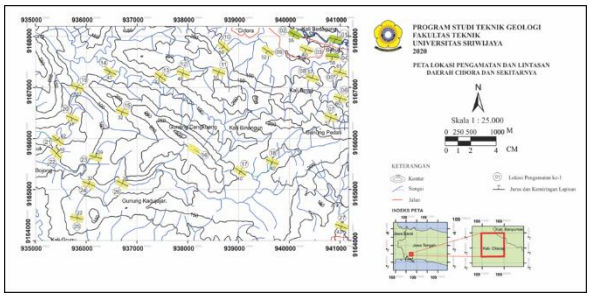

Figure 1 Sample distribution map

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3 RESULTS AND DISCUSSIONS

Based on the results of field data collection, 27 (twenty seven) observation points were obtained, with an abundance of several types of planktonic and benthic foraminifera fossil species. The abundance of these foraminifera species makes the foraminifera species at the observation site an in-situ fossil, which was formed together with the process of rock deposition.

Foraminifera fossils at the observation sites have various physical characteristics. The diversity of fossil shell shapes is analyzed from the shape and arrangement of the chambers, sutures (septums between chambers), apertures (protoplasmic channels), and shell composition.

3.1 Fossil Planktonic Foraminifera

3.1.1 Globorotalia multicamerata

Found at observation sites 1,2,5, and 7. It has the physical characteristics of a white shell with hyaline limestone composition, has a biconvex shell shape and a trochospiral chamber arrangement. In the Suture section it is described as being depressed forming an arch. The aperture part is PAI Umbilical Extra Umbilical and the decorative ornament on the fairies is a keel. On the surface of the shell there are punctate pores. This species has an age range from Late Miocene to Holocene as shown in Figure . [3]

Figure 2 *Globorotalia multicamerata*

3.1.2 Globorotalia tumida

Found at observation sites 3,4,6, and 9. It has the physical characteristics of a white shell with hyaline limestone composition, has a biconvex shell shape and a trochospiral chamber arrangement. In the Sutures it is described as weakly depressed to form an arch. The aperture part is PAI Umbilical Extra Umbilical and the decorative ornament on the fairies is a keel. On the surface of the shell there are punctate pores. This species has an age range from Pliocene to Holocene as shown in Figure . [3]

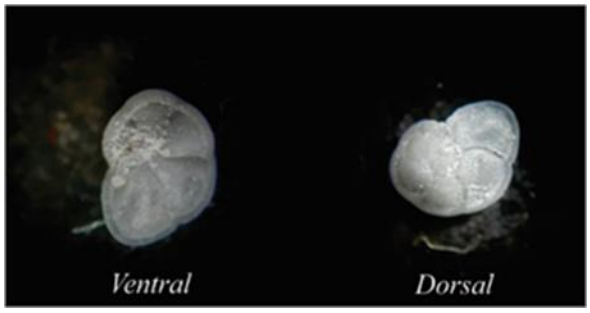

Figure 3 *Globorotalia tumida*

3.1.3 Sphaeroidinella subdehiscens

Found at observation sites 8,10,13, and 15. It has the physical characteristics of a white shell with hyaline limestone composition, has a globular shell shape and streptospiral chamber arrangement. On the Sutures it is described as weakly depressed. The aperture is wide open and extends at the base of the suture. On the surface of the shell there are punctate pores. This species has an age range from Middle Miocene to Pliocene as shown in Figure . [3]

Figure 1 *Sphaeroidinella subdehiscens*

3.1.4 Orbulina universa

Found at observation sites 11,12,14, and 16. It has the physical characteristics of a white shell with hyaline limestone composition, has a globular shell shape and a streptospiral chamber arrangement. On the Sutures it is described as weakly depressed. The aperture section has the characteristic of a small opening due to the last chamber covering the previous chambers. On the surface of the shell there are punctate pores. This species has an age range from Middle Miocene to Holocene as shown in Figure . [3]

Figure 5 *Orbulina universa.*

3.2 Fossil Bentonic Foraminifera

3.2.1 Bulimina striata

Found at observation sites 17, 18, and 20. It has the physical characteristics of a white shell with a hyaline limestone composition, a flaring chamber shape and a polythalamus-uniformed-triserial arrangement of rooms. In the Suture section it is described as being strongly stressed. It has an aperture with a simple type of aperture-at the base of the aperture face, namely the aperture that is on the surface of the room. On the surface of the shell there are punctate pores. This species lives at a depth of 580 fathom or 1055 meters as shown in Figure . [3]

Figure 6 *Globorotalia multicamerata*

3.2.2 Lagena laevis

Found at observation sites 19, 21, and 22. It has the physical characteristics of a white shell with a hyaline limestone composition, a flarc-shaped shell and a monothalamic chamber arrangement. On the Sutures it is described as weakly depressed. It has an aperture with a simple type of aperture-at the base of the aperture face, namely the aperture that is on the surface of the room. This species lives to a depth of 155 fathoms or 283 meters as shown in Figure . [3]

Figure 7 *Globorotalia multicamerate*

3.2.3 Pyrgo lucernula

Found at observation sites 23, 24, and 25. It has the physical characteristics of a white shell with hyaline limestone composition, has a hemispherical shell shape and a monothalamic chamber arrangement. On the Sutures it is described as weakly depressed. It has an aperture with a simple type of aperture-at the base of the aperture face, namely the aperture that is on the surface of the room. This species lives at a depth of 210 fathoms or 383 meters as shown in Figure . [3]

Figure 8 *Globorotalia multicamerate*

3.2.4 Nodosaria inflexa

Found at observation sites 26 and 27. It has the physical characteristics of a white shell with hyaline limestone composition, has a tabular shell shape and a polythalamic - uniformed - uniserial - rectilinear arrangement of rooms which has many rooms separated by the stolonxy neck. In the Suture section it is described as moderately depressed. It has an aperture with a simple type of aperture-at the end of the tabular chamber, namely the aperture that is on the surface of the last chamber. This species lives at a depth of 210 fathoms or 383 meters as shown in Figure . [3]

Figure 9 *Nodosaria inflexa*

4 CONCLUSIONS

1. The research area in Cidora Village and its surroundings has a high carbonate content with various fossil compositions. Abundant fossil group of planktonic foraminifera with the types Globorotalia tumida, Sphaeroidinella subdehiscens, Globorotalia multicamerata, Orbulina universa. Abundant fossil group of benthic foraminifera with species Lagena laevis, Pyrgo lucernula, Nodosaria inflexa, Bulimina striata:
2. Determination of the morphology of the foraminifera fossils at the observation site was analyzed through various physical characteristics, such as the shape and arrangement of the chambers, sutures (septums between rooms), apertures (protoplasmic channels), and shell composition.

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