

The Potential of Batak Local Wisdom “Dekke Naniura” As Reaction Rate Teaching Material?: An Ethnoscience Approach

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Abstract. The ethnoscience approach helps students understand the learning material given the relationship between the living habits or culture of a society and the learning material. In this study, the potential of Batak local wisdom "Dekke Naniura" will be presented as a teaching material for reaction rates. This research is a qualitative descriptive study, by describing the relevance of local wisdom to the material reaction rate. The analysis includes, 1) concept suitability, 2) process suitability, and 3) product suitability. Based on the interpretation of the three indicators, the local wisdom of the Batak "dekke naniura" has the potential and relevance to be used as teaching material for the rate of reaction. However, further research is needed, especially in terms of laboratory analysis related to the initial concept of the relevance of local wisdom.

Keywords: Batak Local Wisdom; Dekke Naniura; Ethnoscience; Reaction Rate Material

1 Introduction

Indonesia is a country that is rich in culture and wisdom. Education plays an important role in that culture, so the government provides a policy on the existence of local culture-based learning programs. In accordance with Government Regulation Number 19 of 2005 concerning National Education Standards Article 14 paragraph (1), the Government expects that education is expected to be based on local excellence or local wisdom [1] An appropriate approach is taken in learning that can result in reciprocity between education and culture, namely the ethnoscience approach [2] This is in accordance with the definition of ethnoscience. Where Ethnoscience is a system of knowledge and cognition typical for a particular culture [3]. Ethnoscience is local wisdom in the form of language, customs and culture, morals; as well as technology made by certain people or people that contain scientific knowledge [4]

Learning based on an ethnoscience approach can be developed so that learning is not only oriented to the cognitive/knowledge aspect but is also oriented to students' understanding of the environment or culture around them [5]. This is supported through an ethnoscience-based learning process that is expected to change the stigma of teacher-centered learning into contextual and meaningful learning [6]. The ethnoscience approach helps students understand learning material because of the linkage to the living habits or culture of a society, for example,

linking traditional food or Indonesian specialties [7]. means materials and the use of additional materials as ways and habits developed and owned by a group of people and passed down from generation to generation [4].

One of the cultures that can support the implementation of this learning is the culture of the Batak tribe. The Batak tribe has passed down a culture related to the food served during traditional Batak ceremonies, the food is "Dekke Naniura". Naniura is one of the traditional specialties of Batak Toba, North Sumatra. Naniura generally uses fresh goldfish as its main raw material. This food is unique because there is no cooking process but the processing is carried out by soaking orange juice and spices, so that the naniura fish meat has a low meat consistency and can be consumed without cooking because the processing of carp naniura occurs by acids which can cause changes in the protein structure.

With specifications the color of the fish flesh is rather pale white indicating the breakdown of protein due to an enzymatic process. Naniura is often encountered at Batak Toba traditional events such as at weddings, parties entering the house, or thanksgiving events at houses of worship. Naniura can be consumed directly or by using other foods such as rice. The principle of processing naniura is to soak the fish that has been seasoned in acid until the fish meat becomes soft and served [9].

The application of the ethnoscience approach in chemistry learning has not been reported until now [10]. So, this research wants to develop or expand the implementation of the ethnoscience approach in chemistry learning on the reaction rate material. This study aims to utilize local wisdom as an alternative to reaction rate practicum.

2 Method

This research includes qualitative descriptive research, examines ethnoscience information, and local wisdom of the Batak tribe regarding the typical food "Dekke Naniura".

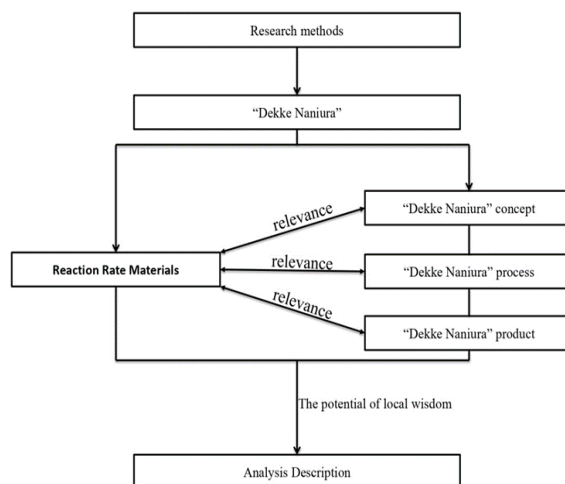


Fig 1. Research procedure

From the information studied, then look at the suitability of the concept of local wisdom of the Batak tribe "Dekke Naniura" with the concept of reaction rate material used in the practicum

process. So that it can be seen how the potential of local wisdom as an alternative to reaction rate practicum is.

3 Results and Discussion

The reaction rate is the rate at which a reactant reacts or the rate at which products are formed in one unit of time. The rate equation for a reaction is an equation that shows the relationship or relationship between the rate of a particular reaction and the concentration of the reactants. The rate of a reaction can be influenced by several factors that can speed up the rate of a reaction or even slow it down.

These factors include temperature, concentration, catalyst, and touch surface area. Through the local wisdom of the Batak tribe "Dekke Naniura" there is a link to the reaction rate material, namely the factors that affect the reaction rate. Chemical reactions involve the change of a reactant (reactant) into a reaction product (product) which is expressed by the following equation. The suitability of the concept of local wisdom (Ethnoscience) with the material concept of Reaction Rate.

Table 1. Relevance of Batak local wisdom “Dekke Naniura” and reaction rate material

No	Indicators	Reaction Material	Batak local wisdom “Dekke Naniura”	Decision
1.	Concept suitability	The rate of reaction is the rate at which a reactant reacts or the rate at which products are formed in one unit. The reaction rate shows the relationship or relationship between the rate of a particular reaction and the concentration of the reactants. (Reactants → products reaction products)	Accelerates the process of maturity of "Dekke Naniura" carp. Raw Carp can be eaten without any cooking process.	Relevant
2.	Process suitability	The reaction rate can be influenced by the concentration factor which can speed up the reaction rate or even slow down the reaction rate. The greater the molarity of a reactant, the faster the reaction rate takes place. The rate of reaction expresses the decrease in the concentration of the reactants or the	Fresh goldfish as the main raw material for “dekke naniura” The ripening process of "dekke naniura" is influenced by the orange juice The more juice of the orange juice, the faster the process of fish maturity/fitness can be eaten. Fish that have been left for several hours, soaked in orange juice and spices, until the meat can be consumed.	Relevant Relevant

increase in the concentration of the products of the reaction per unit time (seconds)

Reaction Equation

A → B
 Can be formulated
 Reaction Rate = -
 $\Delta[A]/\Delta t$ atau $+\Delta[B]/\Delta t$

3.	Product suitability	Concentration on the reaction rate can change the components of a substance such as calcium, protein etc. This is what causes the reaction to speed up or slow down.	Naniura fish has a low meat consistency and can be consumed without cooking because the processing of carp naniura occurs by acids which can cause changes in protein structure with specifications for the color of the fish meat being slightly pale white indicating protein decomposition due to enzymatic processes.	Relevant
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This is in accordance with the initial process of *dekke naniura*, the presence of carp along with spices and the addition of *jungga acid* as a reactant which produces carp that can be consumed without the cooking process (producing *dekke naniura*). From these equations it can be stated that the number of reactants decreases for each unit of time or increases the reaction products for each unit of time. In accordance with ethnoscience, the process of producing the results of *dekke naniura* is that it takes time (settled for several hours) for changes to occur in the raw fish that has been seasoned, and sour, then the raw goldfish is cooked or can be consumed. The reaction rate is affected by the concentration, the higher the concentration, the more molecules in each unit.

This results in more frequent intermolecular collisions and the faster the reaction takes place. This is also evidenced in the process of making *dekke naniura*, where orange juice or kaffir lime is the concentration in the process of making *dekke naniura* soft meat because the processing uses orange juice, so that the meat can be consumed (Turnip et al., 2017) the more volume of tamarind (concentration) then the soft process (reaction rate) of goldfish is getting faster.

4 Conclusion

It can be seen from the table of conformity between the concept of reaction rate and the concept of local wisdom (ethnoscience), that there are several compatibilities of the concept of reaction rate and ethnoscience, namely: 1) the compatibility of the concept of reaction equation. 2) suitability takes time to react. 3) suitability of the effect of concentration on the reaction rate. With the richness and diversity of Indonesian culture, we can develop contextual education through ethnoscience (local wisdom) so that students are interested in learning, especially chemistry learning which is often considered abstract. It is hoped that further researchers can

collaborate with education with the richness and diversity of Indonesian culture to support the quality of education.

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