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Art and Expression



PROGRAM SENI HALUS
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UITM CAWANGAN PERAK

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ONION

Art, Science and Philosophy

a chapter by

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Introduction

According to the 4th Edition of *Kamus Dewan*, *bawang* in Malay language or onion is a type of plant whose bulbs are eaten as shown in Figure 1. Onions, with the scientific name *Allium sp*, are one of the most important elements in cooking. There are numerous onion species such as yellow and red onions (*A. cepa*), shallots (*A. ascalonicum* Hort.), leek (*A. ampeloprasum*) and garlic (*A. sativum* L.). They are also very important food resources throughout the world (Soininen *et al.*, 2014). Meanwhile, the word “membawang” is defined as talking about other people's gossips and this word has become a common phrase among Malaysians (Rosdi, 2018). Therefore, this article discusses the morphology of “*bawang*” or onion, and the term “membawang” as used among Malaysians in terms of artistic representation, biological activity and human life philosophy that could be associated with onions.



Figure 1 : Onion from species *Allium cepa*

Importance of Onion

Onions offer not only great flavour but also nutritional and medicinal values such as vitamins

B1, B2, B6, C, and E, biotin, nicotinic acid, fatty acids, glycolipids, phospholipids, essential amino acids, lectins, sulphur and flavonoids (Pareek *et al.*, 2017). For most people, onions are just another ordinary ingredient in everyday cooking. However, there are many use of onions. Onions are widely used in teaching and learning activities, especially in Biology courses. Figure 2 shows a view of onions under a microscope. This photo was taken during a practical session on the cell cycle subtopic of cell biology reproduction in a science classroom.

Art of Onion and Science

To observe the mitosis process in onion cells, the Feulgen stain staining technique is frequently used. As a result of this staining technique, the main segments of each onion cell, such as chromosomes and cell walls are stained with violet and the nucleus is a dark violet (Gupta, 2023). Naturally, onion cells have an orderly structure like the layout of bricks. Each line is unique and will not be identical with others. The visual effect that can be seen in Figure 2 is the result of the cell cycle system staining consisting of interphase and mitosis in the onion cells. Mitosis is divided into four phases; prophase, metaphase, anaphase and telophase (Wilkins and Holliday, 2009).

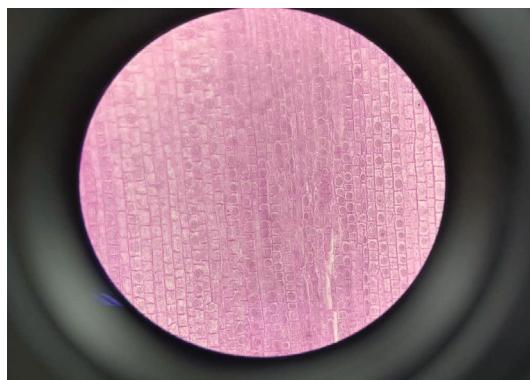


Figure 2: Onion view under a microscope with 40 times of magnification,

In Cell Cycle Theory (citation), interphase is the longest phase in which the nucleus looks like a dark spot in the middle of a square shape. In this phase, the cell undergoes growth, DNA duplication and the checkpoint of optimal cell standard inspection to avoid cell deficiency, such as cancer (Barnum and O'Connell, 2014). After interphase, the onion cells then enter the mitosis phase starting with the prophase. In prophase, nuclear cell starts to disappear and chromosomes condense. Then, the chromosomes align at the spindle equator before they are divided into two different poles during anaphase. Lastly, at the telophase, chromosomes arrive at their respective poles and new two daughter cells are formed. All of these phases are illustrated in Figure 3.

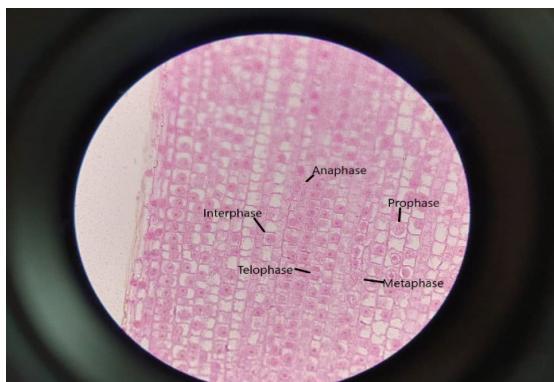


Figure 3 Interphase and mitosis phases

Onion and Philosophy

The philosophy of life that can be learnt from Figure 2 and 3 is that despite being preoccupied with the reproduction task, each cell's boundaries should be maintained even though the cell's numbers are accumulating. Maybe we see only onions, but we are unaware of the rigorous discipline that onions are programmed to maintain their nutritional values and give a unique flavour in cooking. Despite the fact that the cell cycles cannot be seen with the naked eye, it does not mean that life processes do not occur.

In biological systems, mitosis is an ongoing process of growth. Onions and human cells both go through the cell cycles and mitosis at all times. The inference that can be drawn from this is that, as humans, we should constantly strive to better ourselves and society at large.

Conclusion

Because of its well-organized life cycle, onions produce a very beautiful and distinctive artistic pattern after the staining process. "Bawang," or onion, is a very orderly subject in its life process and fiercely guards the boundaries to the norms in life. Thus, it may be said that the word "membawang" actually does not correspond with the reality of onions from the microscopic visualisation and scientific perspective.

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