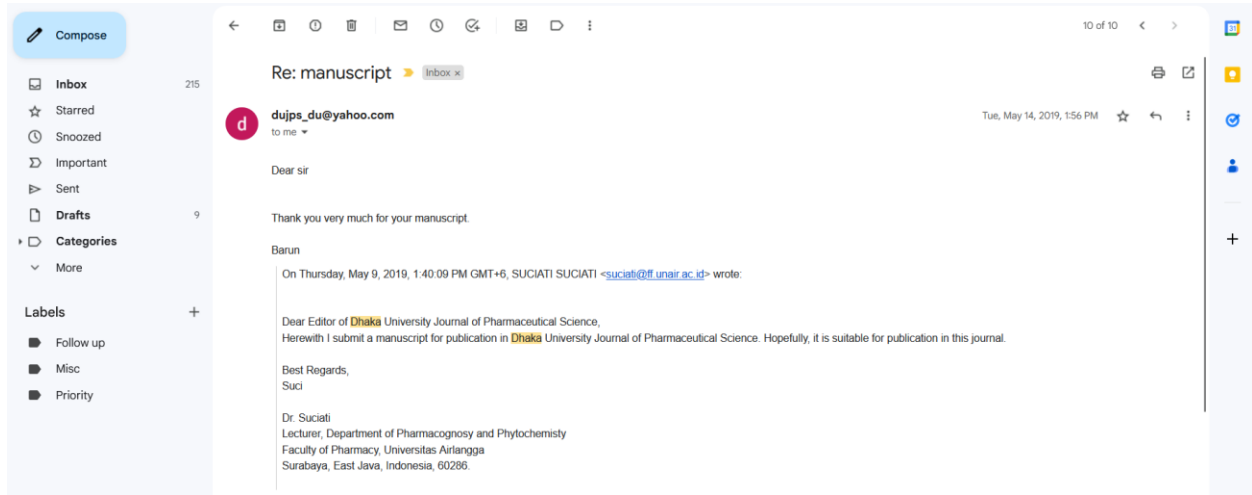
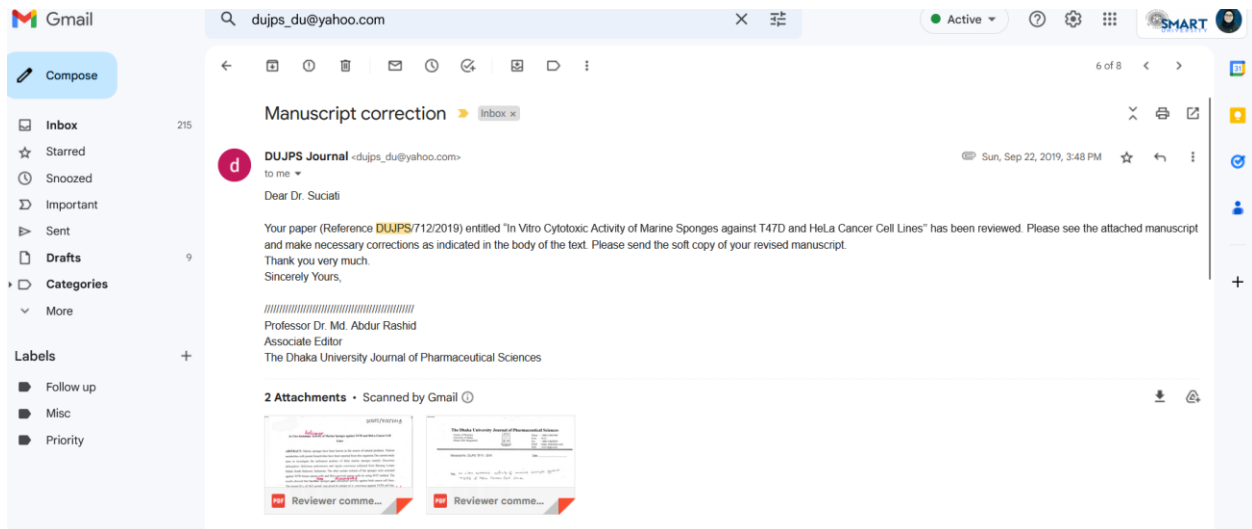


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Anticancer
In Vitro Cytotoxic Activity of Marine Sponges against T47D and HeLa Cancer Cell Lines

ABSTRACT: Marine sponges have been known as the source of natural products. Various metabolites with potent bioactivities have been reported from this organism. The current study aims to investigate the anticancer potency of three marine sponges namely *Diacarnus debeauforti*, *Haliclona amboinensis* and *Agelas cavernosa* collected from Barrang Lompo Island, South Sulawesi, Indonesia. The ethyl acetate extracts of the sponges were screened against T47D breast cancer cells and HeLa cervical cancer cells by using MTT method. The results showed that ~~the three sponges~~ ^{these} ~~gave~~ ^{demonstrated} anticancer activity against both cancer cell lines. The lowest IC₅₀ of 18.2 µg/mL was given by extract of *A. cavernosa* against T47D cell line, while in the screening against HeLa cancer cell line, the extract of *D. debeauforti* ~~gave~~ ^{revealed} the highest potency with IC₅₀ of 15.7 µg/mL. Our results suggested that marine sponges ~~D. debeauforti~~ ^{the}, ~~H. amboinensis~~ ^{good} and ~~A. cavernosa~~ ^{namely} can be candidates for development of anticancer agents.

Key words: Marine sponges, Anticancer, T47D, HeLa, MTT ~~method~~

The manuscript may be accepted for publication in DUJPS, if a revised version is submitted by following the marked copy of the manuscript.

INTRODUCTION

The oceans, which cover 70% of the Earth's surface, is a unique environment consisting of extreme variation in pressure, salinity and temperature which have been the habitat of various organisms, including sponges. Amongst marine resources, sponges have been the focus of study for many years. So far more than 15,000 species have been discovered WorldWide. Diverse metabolites have been reported from marine sponges and many of these compounds showed pronounced bioactivity including anticancer. ~~is~~ properly. 1,2

Cancer is still a major health problem, which causes a large number of deaths around the World. According to WHO, it is estimated that in 2020, cancer would kill almost ~~10.3~~ 10.3 million people each year unless they take appropriate action to combat this illness.³ In recent years, investigation of marine sponges as an anticancer agents has produced a considerable number of drug candidates. Example of marine sponge-derived anticancer agents including, include cytarabine (Ara-C) a derivative from the Caribbean sponge *Tethya crypta* and eribulin mesylate a derivative developed from *Halichondria okadai*. These two anticancer agents have been approved by FDA and marketed in the USA.^{4,5}

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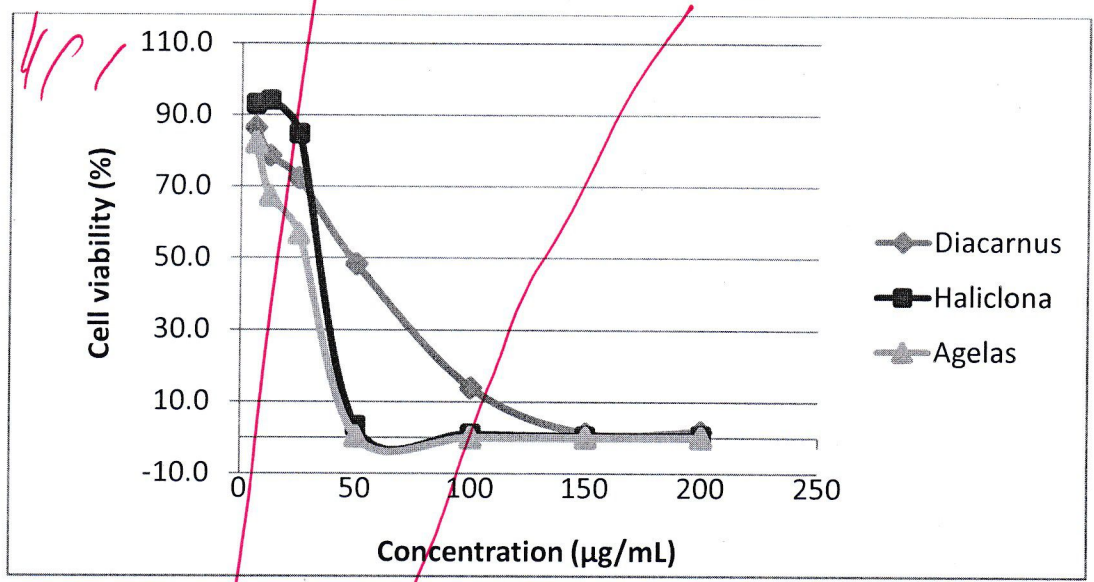


Figure 1. Effect of marine sponges extracts on cell viability in T47D cells

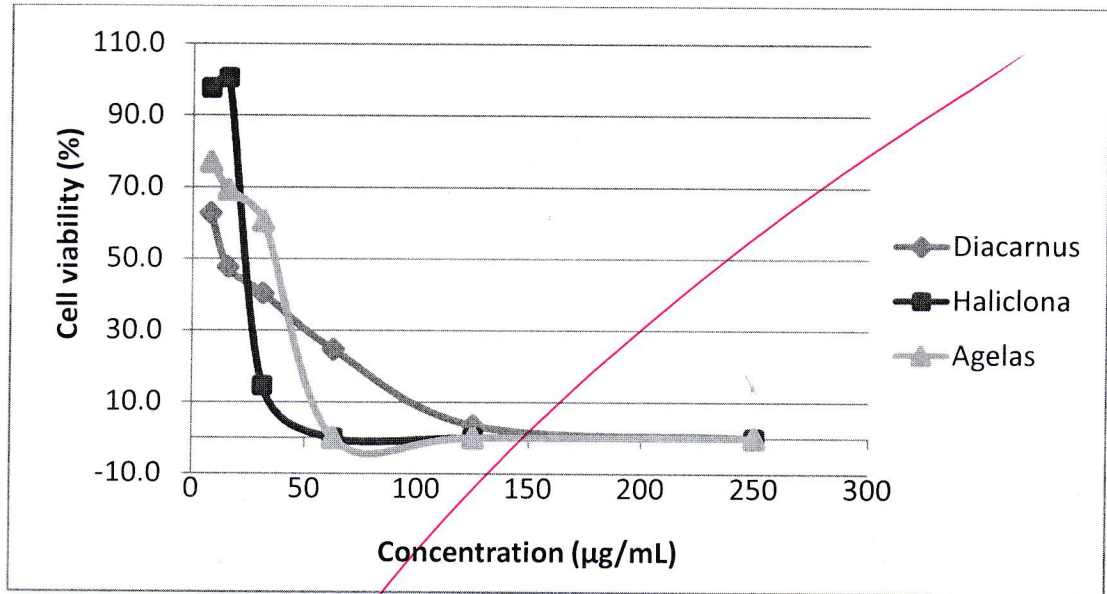


Figure 2. Effect of marine sponges extracts on cell viability in HeLa cells

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Title: *In vitro* cytotoxic activity of marine sponges against T47D & HeLa Cancer Cell lines.

Report of the Reviewer:

- Is the contribution new and substantial? Yes No
- Is the literature citation satisfactory? Yes No
- Is the experimental design adequate? Yes No
- Is the paper sufficiently concise? Yes No
- Are the statistics adequate, if any? Yes No NA
- Is the linguistic quality satisfactory? Yes No
- Are the formulae correct? Yes No NA
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Yes No NA
If not delete Table(s) Illustrations
- Is/are the structure(s) properly characterized? Yes No NA

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Please see inside the manuscript. Two things should be provided.

a) How the samples were prepared? (DMSO & other composition)

b) The data of cell viability should show the response ~~of~~ vehicle treatment.

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* *
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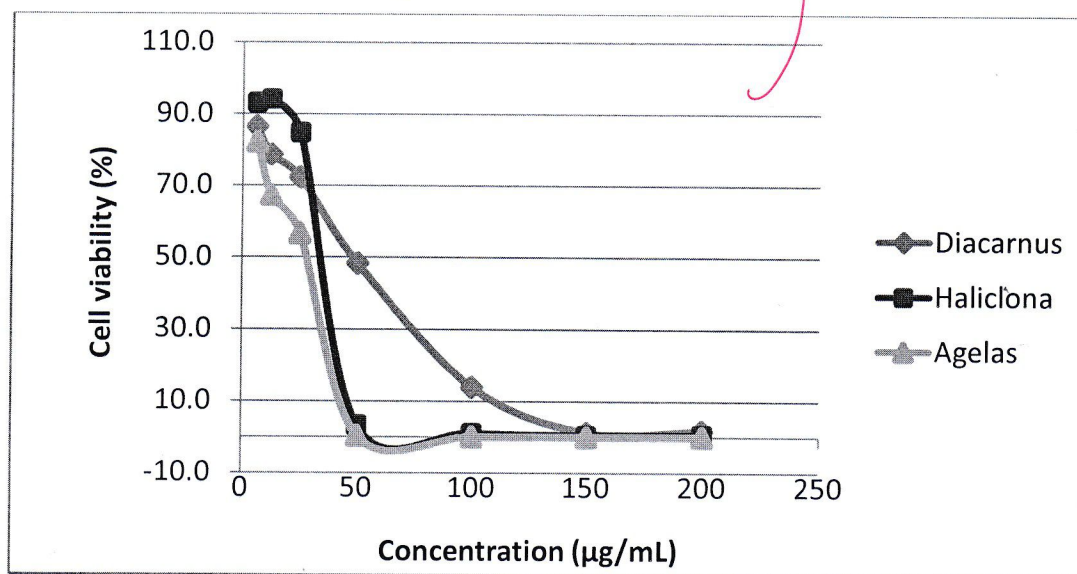


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The samples were dissolved in DMSO. So, the graph should show a data of cell viability with DMSO only, at the concentration it was used.

→ (m=?)

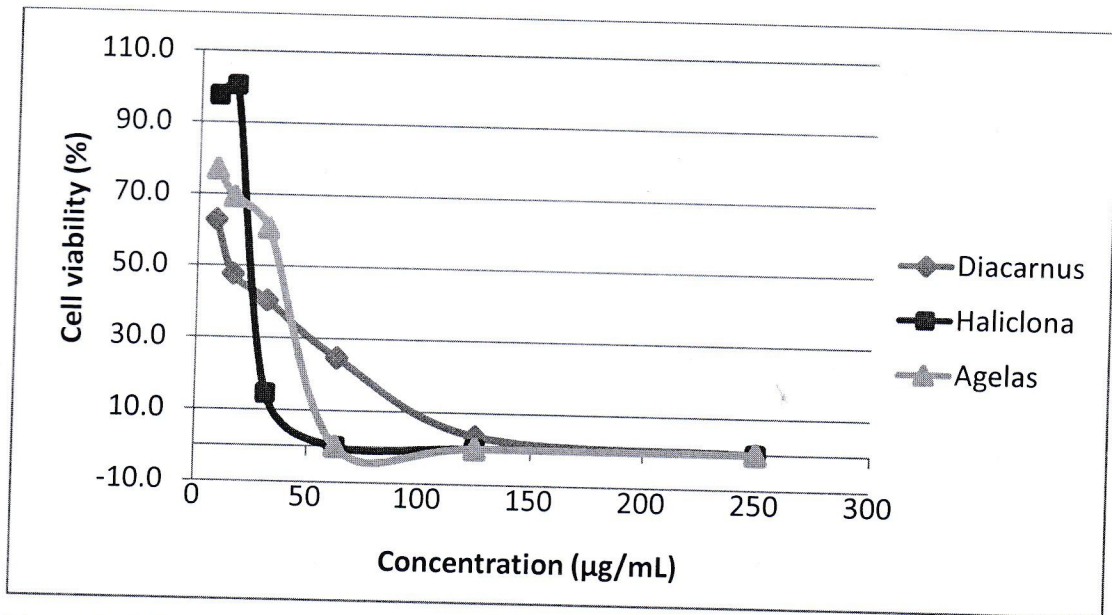


Figure 2. Effect of marine sponges extracts on cell viability in HeLa cells

Tanggapan Terhadap Komentar Reviewers

Response to the reviewer comments

Manuscript Title: ***In Vitro* Cytotoxic Activity of Marine Sponges against T47D and HeLa Cancer Cell Lines**

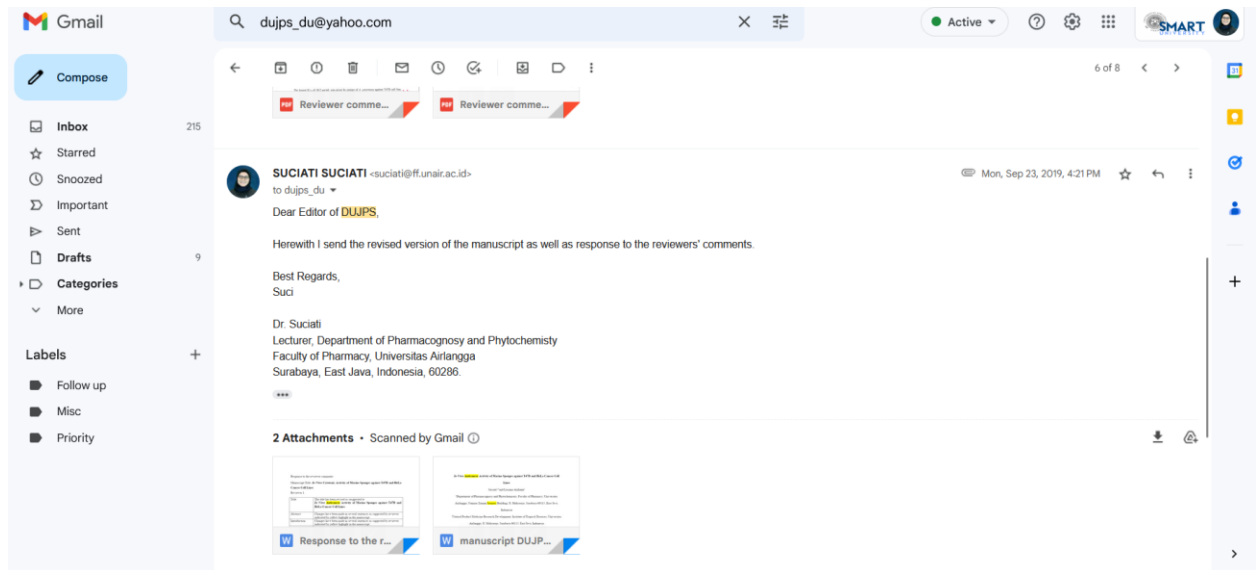
Reviewer 1.

Title	The title has been revised as suggested to <i>In Vitro</i> Anticancer Activity of Marine Sponges against T47D and HeLa Cancer Cell Lines
Abstract	Changes have been made in several sentences as suggested by reviewer indicated by yellow highlight in the manuscript
Introduction	Changes have been made in several sentences as suggested by reviewer indicated by yellow highlight in the manuscript
Material and Method	Changes have been made in several sentences as suggested by reviewer indicated by yellow highlight in the manuscript
Results and Discussion	Changes have been made in several sentences as suggested by reviewer indicated by yellow highlight in the manuscript
Conclusion	Changes have been made in several sentences as suggested by reviewer indicated by yellow highlight in the manuscript
References	Changes have been made in several sentences as suggested by reviewer indicated by yellow highlight in the manuscript
Table 1	Changes have been made in several sentences as suggested by reviewer indicated by yellow highlight in the manuscript
Figure 1 and 2	Author prefer to keep figures 1-2 since it is needed to explain the results of the study.

Reviewer 2.

Abstract	Changes have been made in several sentences as suggested by reviewer indicated by green highlight in the manuscript
Introduction	Changes have been made in several sentences as suggested by reviewer indicated by green highlight in the manuscript
Material and Method	Explanation how the samples were prepared has been added.
Results and Discussion	<ul style="list-style-type: none"> • Author prefer to keep paragraph 1 in the manuscript since it explains why the method used in this study • Changes have been made in several sentences as suggested by reviewer indicated by green highlight in the manuscript
Table 1	Number of replicates have been added “Experiments were done in triplicate.”

Figure 1 and 2 The concentration of DMSO used in this study is less than 1%, and based on our study this concentration did not kill the cells.



3. Artikel Diterbitkan

