COVER LETTER

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9 August 2021

Dear Editor of Indonesian Journal of Chemistry,

We wish to submit an original research article entitled "**STUDY OF PHYSICOCHEMICAL PROCESS VARIABLES EFFECT ON NATURAL INDIGO DYE PRODUCTION FROM STROBILANTHES CUSIA LEAVES BY RESPONSE SURFACE METHODOLOGY**" for consideration by the Indonesian Journal of Chemistry. We confirm that the written manuscript is original, and no part of it has been published before, nor is any part of it currently under consideration for publication elsewhere.

This research is motivated by the increasing use of synthetic dyes rather than natural dye. We know that synthetic dyes are one of the most significant pollutants in water. Waste that is difficult to degrade can cause environmental and health problems. One alternative to reduce the environmental impact is to substitute the use of synthetic dyes with natural dyes. One of them is the use of *Strobilanthes cusia* leaves as a source of natural blue dye. In terms of process and economy, it is necessary to study more deeply to obtain a high content of indigo blue dye. The purpose of this research was to evaluate the effect of physicochemical process variables, i.e., temperature, time, and pH aeration, on indigo yield from *Strobilanthes cusia* leaves. The optimized condition for indigo production was studied using response surface methodology (RSM) with the full factorial design. The indigo concentration was quantified through spectrophotometer visible and HPLC analysis. The FTIR test was carried out for the crude indigo results obtained to characterize indigo compounds.

Data analysis results are processed using RSM. Using RSM provided a new perspective to find the optimum conditions with different levels of results with predictions below 5%. According to this regression analysis, the model has a good precision value and meets the requirements for the

optimization process. The research results in the form of natural products for indigo blue dye will have a tremendous impact in supporting the optimization of the use of natural resources. Thus, with the interpretation of structured analysis data, comprehensive discussion, and processing of relevant statistical data, this paper has met the criteria in the scope provided in the Indonesian Journal of Chemistry.

Please find below a list of potential reviewers for this work.

We have no conflicts of interest to disclose.
Please address all correspondence concerning this manuscript to me at edia_rahayu@ugm.ac.id.

Your consideration is very much appreciated. We are looking forward to your favorable reply.

Sincerely,
Edia Rahayuningsih

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