

## Invitation to Review Manuscript ed-2020-00395q.R1

2 pesan

Journal of Chemical Education <onbehalf of @manuscriptcentral.com>

Sab, 22 Agu 2020 pukul 13.20

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Journal: The Journal of Chemical Education

Manuscript ID: ed-2020-00395q.R1

Title: "Enhancing interdisciplinary and systems thinking with an integrative plant chemistry module applied in diverse

undergraduate course settings"
Manuscript Type: Activity

Author(s): Busta, Lucas; Russo, Sabrina

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Dear Dr. Hakim:

Thank you for reviewing the original version of this manuscript for the Journal of Chemical Education. We have received a revision, the abstract of which is included below. We would greatly appreciate it if you would agree to review this manuscript again for our journal. For your convenience, we have also included the author's response to the original reviews.

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We hope you are able to review this manuscript and if you have any questions please do not hesitate to contact us.

We look forward to hearing from you soon.

Sincerely,

Renée Cole Associate Editor Journal of Chemical Education Fax: (202)354-5060 rcole@jce.acs.org \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

Manuscript Abstract for ed-2020-00395q.R1:

To meet the complex global challenges that workers in STEM fields face, it is critical that today's students develop integrative technical skills and cognitive competencies. As a highly interdisciplinary field, medicinal plant chemistry provides an exceptionally rich environment for such training. Here, we describe a hands-on medicinal plant chemistry laboratory module (Phytochemical Laboratory Activities for iNtegrative Thinking and Enhanced Competencies; PLANTEC) for undergraduates that targets the development of core competencies in (i) logical thinking and analysis of text and data, (ii) interdisciplinary and systems thinking, (iii) oral and written communication of science, and (iv) teamwork and collaboration. Each student determines the natural product profile of a plant species using thin-layerchromatography and gas chromatography-mass spectrometry. Students work in pairs and small groups to analyze their data and interpret their findings in chemical, biochemical, and biological contexts, PLANTEC is scalable and so can be offered in laboratory or lecture courses, and even partially or entirely online. We implemented this module in an undergraduate biology lecture course over six fifty-minute lessons in the fall semesters of both 2018 and 2019. We also experimented with modifications of PLANTEC to tailor learning objectives and thereby emphasize different disciplines during data interpretation (e.g., plant chemistry, ecology, evolution). Students consistently responded that PLANTEC increased not only their confidence in analyzing, interpreting, discussing, and writing about new kinds of data and complex ideas, but also their interest in medicinal plant chemistry. Interdisciplinary laboratory modules of this type will be particularly useful in developing an innovative and versatile STEM workforce of the future.

\*

Author's Response to the Decision Letter:

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**Aliefman Hakim** <aliefmanhakim27@gmail.com> Kepada: Supriadi M.Pd <supriadi\_fkip@unram.ac.id> Min, 23 Agu 2020 pukul 15.49

[Kutipan teks disembunyikan]



## Thank you for submitting your review of ed-2020-00395q.R1

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Balas ke: rcole@jce.acs.org

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02-Sep-2020

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Manuscript ID: ed-2020-00395q.R1

Title: "Enhancing interdisciplinary and systems thinking with an integrative plant chemistry module applied in diverse

undergraduate course settings"

Author(s): Busta, Lucas; Russo, Sabrina

Dear Dr. Hakim:

Thank you for submitting your review of this manuscript. Your time and expertise are greatly appreciated and your comments will help us make a decision regarding its publication in the Journal of Chemical Education.

We appreciate the voluntary contribution that each reviewer gives to the journal, and we thank you for your participation in the online review process.

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