

COVER LETTER

[Deseember 23th 2023]

Dear Chief Editor,

I am pleased to submit our manuscript entitled “[**Induced variability of Tomato Seeds (*Lycopersicon esculentum* Mill.) by Gamma Irradiation and Early Detection of Tomato Variants Resistance to Anthracnose**]” by [Reni Indrayanti¹, Hafidzah Zahratunnisa¹, Nabila Destyana¹, Adisyahputra¹, Dalia Sukmawati¹, Riza Desnurvia²] for consideration as a *Pakistan Journal of Phytophatology* research article.

In this manuscript, we show that the gamma irradiation on tomato seed produces variability in viability and vigor testing of tomato seeds. Induce variability resistances of tomato plant to anthracnose. The seed viability is show

- Maximum Growth Potential (MGP) ranging from 70.0 – 100.0%.
- Germination Potential (GP) ranged from 46.0 – 92.0 %.

The seed vigor shown

- Germination Vigor Index ranged from 40.0 – 80%, and
- Seed Emergence uniformity (SEU) ranged from 62.0 – 82.0%.

The Lethal Dose of 50% (LD₅₀) concludes that the

- LD₅₀ of tomato was obtained at 132.48 Gy.
- Gamma irradiation 60-120 Gy significantly caused a lower plant height, the number of leaves, and leaf width, and phenotypically have longer leaves than the control plant.

The detection of tomato plant cv. 'Timothy' F1's resistance to anthracnose

- The identification of the LD₅₀ and the observation of anthracnose resistance in the 70 Gy-irradiated tomato plant are essential, suggesting potential applications in mutation breeding programs for developing tomato cultivars with enhanced disease resistance

We believe that our paper is appropriate for publication by *Pakistan Journal of Phytophatology* because is our paper focuses on the topic of **potential applications in mutation breeding programs for developing tomato cultivars with enhanced disease resistance**.

Our manuscript creates a for future studies

- Evaluation of resistance variant plant in a greenhouse and in the field
- Detection of tomato variant using molecular marker
- Increase variability in other tomato cultivar resistance to anthracnose using gamma irradiation.

Number of Table and Figure are 5 and 7

This manuscript has not been published before and is not being considered for publication elsewhere. We have no conflicts of interest to disclose.

Place, date
Jakarta, December 23, 2023

Author name(s) (in block letters)

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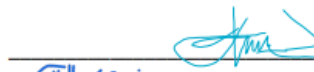
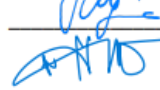
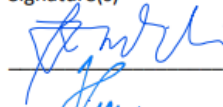
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Thank you for your consideration.

Sincerely,



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