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Role of seed coat color and harvest year on growth enhancement by plasma irradiation to seeds[1] KAZUNORI KOGA, PANKAJ ATTRI, Kyushu Univ, KENJI ISHIKAWA, Nagoya Univ, TAKAMASA OKUMURA, KAYO MATSUO, DAISUKE YAMASHITA, KUNIHIRO KAMATAKI, NAHO ITAGAKI, MASAHARU SHIRATANI, Kyushu Univ, VIDA MILDAZIENE, Vytautas Magnus Univ — In recent years non-thermal plasma (NTP) application in agriculture is rapidly increasing, although the response of seeds to NTP treatment may depend on the coat color and harvest year has never been tackled. Therefore, in this study we have used radish sprouts (Raphanus sativus L.) seeds treated with scalar DBD for 3 mins [1]. The seeds were bought from Nakahara Seed Co., Japan in 2017 and 2018. Seeds were separated into two color groups of brown and grey. It was observed that there was no significant difference in the germination rate of brown and grey seeds for both 2017 and 2018 harvest year after the NTP treatment. Whereas, growth enhancement was observed for 2017 harvest, while no significant growth enhancement was observed for 2018 harvest for both brown and grey color seed coat after NTP treatment. Later, we observed increased concentration of Gibberellin A3 after plasma treatment for 2017 harvest year, while there was no significant difference for 2018 harvest year. This shows that harvest year and seed coat color both plays significant role in growth enhancement after plasma treatment. However, the harvest year dominant over seed coat color in plasma agriculture. [1] K. Koga, et al., Jpn. J. Appl. Phys. 59 (2020) SHHF01.

[1]JSPS KAKENHI JP 20H01893 and JP19H05462

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