AARJMD VOLUME 5 ISSUE 7 (JULY 2018) ISSN : 2319 - 2801

A Peer Reviewed International Journal of Asian Academic Research Associates

AARJMD

ASIAN ACADEMIC RESEARCH JOURNAL OF MULTIDISCIPLINARY

PHYSIOLOGICAL QUALITY OF SEEDS OF CUCUMIS SATIVUS L.

ANA CAROLINA PINGUELLI RISTAU[1]; MARIA SORAIA FORTADO VERA CRUZ[2]; SHIRLENE SOUZA OLIVEIRA[3]; THATIANE NEPOMUCENO ALVES[4]; MARLENE DE MATOS MALAVASI[5]; UBIRAJARA CONTRO MALAVASI[6]

[1,2,3,4,5,6]Center of Agrarian Sciences, State University of Western Paraná, Marechal Cândido Rondon, Brazil

Abstract

Among the vegetables, cucumber is produced in significant volumes, and is increasingly being consumed in Brazil. However, for this species, the research has not offered sufficient alternatives to the safe assessment of physiological quality. The objective of this work was to evaluate the physiological potential of different cultivars of cucumber, as well as investigate the effectiveness of vigor tests for separation of seed quality assessed. It was evaluated if seeds of three different cucumber cultivars, being them Cucumber Green, White and Cucumber Aodai, submitted to the germination test, calculated the average speed of germination and average time of germination and vigor tests first count of germination, germination speed index, accelerated ageing and seedling performance, by means of evaluation of the length of the radicle and hypocotyl length, diameter at the base of the hypocotyl, shoot dry mass, root dry mass. The experimental design was completely randomized, consisting of 3 cultivars, 7 replications with 15 seeds. The results were analyzed and subjected to analysis of variance and the averages were comparas by Tukey test at 5% probability of error. The cucumber cultivars Aodai and cucumber green showed the highest mean germination percentage and germination speed index. No significant differences were observed between the cultivars in relation to the average time and average speed of germination. It has been observed that the accelerated ageing considerably reduced the seed physiological potential of cucumber cultivars, however the test proved to be efficient to reveal differences in vigor among seed lots. For the characteristics relating to the performance of the seedlings of cucumber cultivars, there was no statistically significant difference for all observed parameters, except for the diameter at the base of the hypocotyl. The cucumber cultivars Aodai and Green showed better performance than the cucumber White. Still being the cultivar Aodai more vigorous than Green, because it showed superiority in larger parameters of force. The vigor tests evaluated, accelerated ageing and performance assessment of seedlings were considered as good indicators of physiological potential of seeds, allowing them to separate seed lots of different physiological qualities. In addition to these, the vigor tests conducted jointly with the germination test, index of germination speed and first count of germination, showed efficiency in the separation of seed vigor of different lots. These tests may be recommended, in order to make efficient separation of lots of different qualities, in addition to convenience and ease in their implementation.

Keywords: Cultivars, cucumber, germination test, vigor tests.

References

[1] NAKADA, P. G; OLIVEIRA, J. A.; MELO, L. C.; GOMES, L. A.; PINHO, E. V. R. (2011). physiological and biochemical performance of cucumber seeds at different maturation stages. Revista Brasileira de Sementes, v.33 (1),113-1222.

[2] ABDO, M. T. V. N.; PIMENTA, R. S.; PANOBIANCO, M.; VIEIRA, R. D. (2005). vigor tests for the evaluation of cucumber seeds. Revista Brasileira de Sementes, v. 27 (1), 195-198.

[3] MARCOS-FILHO, J. (2015). Seed Physiology of cultivated plants. 2 Ed. Londrina: ABRATES, 660p.

[4] BAALBAKI, R.; ELIAS, S.; MARCOS-FILHO, J.; MCDONALD, M. B. (2009). Seed vigor testing handbook. Ithaca: Association of Official Seed Analysts. 345p.

[5] ISLA SEEDS. (2018). ISLA 2018 catalog. Porto Alegre, RS, 116 p.

[6] Brazil. (2009) The Ministry of Agriculture, Livestock and Food Supply. Rules for Seed Analysis. Ministry of Agriculture, Livestock and Food Supply. Defense Secretary of Agriculture. Brasilia: MAP, 395p.

[7] LABOURIAU, L.G. (1983). The germination of seeds. Washington: OAS. 261p.

[8] MAGUIRE, J.D. (1962). Speed of germination aid in selection and evaluation for seeding emergence and vigor. Crop Science, Madison, v.2 (2), 176-177.

[9] LIMA, L. B.; MARCOS FILHO, J. (2011). Procedures for conducting tests of force based on the tolerance to heat stress in of cucumber seeds. Revista Brasileira de Sementes, v.33, 9(1), 45-53.

[10] LIMA, L. B.; MARCOS FILHO, J. (2010). Priming of cucumber seeds and germination under different temperatures. Revista Brasileira de Sementes, v. 32 (1), 138-147.

[11] NAKAGAWA, J. (1999). vigor tests based on the evaluation of seedlings. In: zuber, F.C.; VIEIRA, R.D.; France-NETO, J.B. (Ed.). Seed Vigor: concepts and tests. Londrina: ABRATES, p.2:1- 2:21.

[12] TAIZ, L.; ZEIGER, E. (2017). Plant Physiology. 6. ed., Hucitec. 888 p.

[13] SOUZA, R. H. V.; VILLELA, F. A.; Sena, T. S. (2015). physiological potential of seed lots of different lots of pumpkins Caserta and pumpkin. Revista Pernambuco, v. 20 (1), 43-49.