

ABSTRACT

NABILAH DESTIYANA, Endurance Test Variant of Chilli cv. Prima Agrihorti Result of Gamma Irradiation Against Anthracnose Disease. Under the guidance and direction of RENI INDRAYANTI, ADISYAHPUTRA.

Chilli (*Capsicum annuum* L.) is a fruit favored by the public. The price of chili continues to increase, the price increase is caused by a reduced supply, while consumption is constant and continuous everyday. Anthracnose disease caused by the fungus *Colletotrichum* spp. is one of the causes of reduced chili supply. The aim of this study are 1) testing the viability and vigor of Prima Agrihorti's chilli seeds; 2) to get a lethal dose (LD₅₀) of gamma irradiation chilli seeds which can cause plant diversity; 3) identify the diversity of gamma irradiation chilli plants; 4) to determine the level of resistance gamma irradiation chilli plants to anthracnose disease. The research was conducted at the Tissue Culture Laboratory, Biology FMIPA, State University of Jakarta. Experimental research with a Completely Randomized Design (CRD) with one factor, namely gamma ray radiation doses 0, 8, 16, 20, 40, 60, 80, 100, and 120 Gy. The results of the seed viability test using straw paper showed that the seeds of Prima Agrihorti's chilli has viability (PTM and DB) of 66% and vigor (IV and Kst) of 20 and 18%. The viability of seeds after being irradiated with doses of 8, 16, 60, 80, and 100 Gy increased the germination percentage of unirradiated seeds (control), while doses of 20, 40, and 120 Gy decreased the germination percentage of control seeds. Lethal dose of 50% (LD₅₀) of chilli seed variants was at a dose of 227 Gy. The optimal dose of 16 Gy and 20 Gy gamma irradiation for Prima Agrihorti's chilli plant growth is seen from plant height and leaf size, however the results of testing the resistance of chilli variants from gamma irradiation generally showed that gamma irradiation chilli were susceptible to anthracnose disease, but the severity of the disease is different for each dose, disease severity (KeP) was lowest at a dose of 16 Gy.

Keyword: *anthracnose, chilli, hydroponics, gamma irradiation*