(TITLE Bookman Old Style 14 font size)

EFFECTIVENESS AND RELATIVE EFFICIENCY OF MUTAGENS IN LABLAB PURPUREUS (L) SWEET*.*

**INTERNATIONAL JOURNAL OF RESEARCHES IN BIOSCIENCES, AGRICULTURE AND TECHNOLOGY**

**© VMS RESEARCH FOUNDATION** [**www.ijrbat.in**](http://www.ijrbat.in)



Jagtap.S.S and Sawant U S (Bookman Old Style 12 Bold)

Department of Botany, Waghire College, Saswad, Pune, Savitribai Phule Pune University, Pune- 411 007 (Bookman Old Style 10)

Corresponding Author Email : [swap2004@yahoo.co.in](mailto:swap2004@yahoo.co.in)

**ABSTRACT: (**(Bookman Old Style **Font Size 9 Bold)**

Font Sixe 8, Normal

**Key words:** -  *(Minimum 5 Keywords)*

**INTRODUCTION: (Font Size 9 Bold)**

Pulses are a valuable source of protein, vitamins, and minerals. Pulses by-products are fed to livestock as a dry and fresh feed. In Asia, Africa, and the Caribbean, *Lablab purpureus* is produced as a pulse crop.

**MATERIALS AND METHODS: (Font Size 9 Bold)**

**Mode of the Mutagenic Treatment:**

1. Gamma rays- Healthy and uniform size of dry seeds of the Dolichos bean variety *Phulesuruchi* were treated with CO60 irradiation. The seed samples were exposed to doses of 100Gy, 200Gy, 300Gy, and 400Gy of Gamma rays.

2. Ethyl Methanesulphonate (EMSmolecular weight 124.16 g/mol and its density 1.20g/cm3) was used to determine the lethal dose (LD 50) at suitable concentration of mutagen for the further study. The different concentrations used for the chemical mutagenic treatment were 10mM, 20mM, 30mM, and 40mM.

3. Combination treatment- For the combination treatment Gamma rays irradiated seedswere

**RESULT & DISCUSSION:**

**Mutagenic efficiency (Table No.1)**

The mutagenic efficiency ratio of chlorophyll mutations induced in the M2 generation to various biological damages induced in M1 generation such as Lethality and pollen sterility.

(TABLE FIGURES, Graphs should be at Last)

Table No.1.Relative efficiency of treatment of mutagens in M2 generation of Lablab*purpureus*(L.)Sweet*.*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Mutagens | Dose/Conc. | % of chl.  mutation | % of Lethality | Efficiency  (MF/L) | % of Pollen sterility | Efficiency  (MF/S) |
| Control |  | - | - | - | 2.1 | - |
| Ethyl Methane  sulphonate | 10mM | 1.36 | 16.57 | 0.082 | 3.3 | 0.412 |
| 20mM | 2.09 | 18.37 | 0.113 | 4.84 | 0.431 |
| 30mM | 3.20 | 19.60 | 0.163 | 6.65 | 0.481 |
| 40mM | 3.64 | 23.30 | 0.156 | 8.80 | 0.413 |
| Gamma Rays | 100Gy | 1.03 | 18.65 | 0.055 | 6.16 | 0.167 |
| 200Gy | 1.79 | 19.70 | 0.090 | 7.93 | 0.225 |
| 300Gy | 2.23 | 21.34 | 0.104 | 8.65 | 0.257 |
| 400Gy | 2.71 | 23.90 | 0.113 | 10.40 | 0.260 |
| Combination  Treatments | 100Gy+40mM | 2.42 | 19.47 | 0.124 | 6.33 | 0.382 |
| 200Gy+30mM | 3.23 | 20.36 | 0.158 | 7.35 | 0.439 |
| 300Gy+20mM | 3.74 | 22.87 | 0.163 | 8.14 | 0.459 |
| 400Gy+10mM | 4.28 | 24.67 | 0.173 | 9.69 | 0.441 |

****

**CONCLUSION:**

The relative effectiveness and efficiency of the three mutagenic treatments like Gamma rays, EMS and Combination treatment was calculated. The efficiency of the mutagens with respect to the lethality increased in all the treatments with the increase in the dose or concentration of the mutagens.

**REFERENCES:**

Adebisi, A.A., Bosch, C.H (2004) *Lablab purpureus* (L.) Sweet Record from PROTA4U, Grubben, G. J. H., Denton, O. A (Editor) PROTA (Plant Resource of Tropical Africa resource vegetable de l’ Afriquetropicale).,Wageningen, Netherlands.

Bhosale, S.S and Kothekar, V.S. (2010) Mutagenic efficiency and effectiveness in Cluster bean (*Cyamopsistetragonoloba*(L.) Taub) *J.Phytol.*2 (6)21-27.

Bhosale, .R.S. (2013) Genetic improvement in*WithaniasomniferumDunal*,Ph.D Thesis, SPPU. Pune .

.