

List of Tables

| Table No. | Title | After page |
|-----------|---|------------|
| 1.1 | Agronomic/Morphological characters of horsegram cv. Dapoli Kulthi-1 | 6 |
| 3.1 | Meteorological data of the experimental site during the period of investigation (2007-2009) | 26 |
| 4.1 | Effect of mutagens on seed germination and seedling height in M ₁ generation of horsegram cv. Dapoli Kulthi-1. | 38 |
| 4.2 | Effect of mutagens on lethality, seeding injury, pollen sterility and survival in M ₁ generation of horsegram cv. Dapoli Kulthi-1. | 39 |
| 4.3 | Micromutations in M ₁ generation of horsegram cv. Dapoli Kulthi-1. | 40 |
| 4.4 | Effect of mutagens on the frequency and spectrum of chlorophyll mutations in M ₂ generation of horsegram cv. Dapoli Kulthi-1. | 42 |
| 4.5 | Mutagenic effectiveness of gamma radiation, EMS and their combinations in M ₂ generation of horsegram cv. Dapoli Kulthi-1. | 43 |
| 4.6 | The efficiency of gamma radiation, EMS and their combinations in M ₂ generation of horsegram cv. Dapoli Kulthi-1. | 44 |
| 4.7a | Effect of gamma radiation on frequency and spectrum of viable mutations in M ₂ generation of horsegram cv. Dapoli Kulthi-1. | 45 |
| 4.7b | Effect of EMS on frequency and spectrum of viable mutations in M ₂ generation of horsegram cv. Dapoli Kulthi-1. | 45 |
| 4.7c | Effect of gamma radiation and EMS on frequency and spectrum of viable mutations in M ₂ generation of horsegram cv. Dapoli Kulthi-1. | 45 |
| 4.7d | Effect of gamma radiation and EMS on frequency and spectrum of viable mutations in M ₂ generation of horsegram cv. Dapoli Kulthi-1. | 45 |
| 4.7e | Effect of gamma radiation and EMS on frequency and spectrum of viable mutations in M ₂ generation of horsegram cv. Dapoli Kulthi-1. | 45 |
| 4.7f | Effect of gamma radiation and EMS on frequency and spectrum of viable mutations in M ₂ generation of horsegram cv. Dapoli Kulthi-1. | 45 |
| 4.8 | Micromutations in M ₂ generation of horsegram cv. Dapoli Kulthi-1. | 50 |
| 4.9 | Micromutations in M ₃ generation of horsegram cv. Dapoli Kulthi-1. | 50 |
| 4.10 | Effect of mutagens on total dry biomass, number and fresh weight of nodules/plant (45 DAS) in M ₂ generation of horsegram cv. Dapoli Kulthi-1. | 54 |
| 4.11 | Effect of mutagens on total dry biomass, number and fresh weight of nodules/plant (45 DAS) in M ₃ generation of horsegram cv. Dapoli Kulthi-1. | 54 |
| 4.12 | Effect of mutagens on seed yield, biological yield and harvest index in M ₂ generation of horsegram cv. Dapoli Kulthi-1. | 55 |

| | | |
|------|--|----|
| 4.13 | Effect of mutagens on seed yield, biological yield and harvest index in M ₃ generation of horsegram cv. Dapoli Kulthi-1. | 55 |
| 4.14 | Effect of gamma radiation, EMS and their combinations on chlorophyll contents in M ₂ generation of horsegram cv. Dapoli Kulthi-1. | 55 |
| 4.15 | Effect of gamma radiation, EMS and their combinations on chlorophyll contents in M ₃ generation of horsegram cv. Dapoli Kulthi-1. | 55 |
| 4.16 | Effect of gamma radiation, EMS and their combinations on organic constituents in seeds of M ₂ generation of horsegram cv. Dapoli Kulthi-1. | 55 |
| 4.17 | Effect of gamma radiation, EMS and their combinations on organic constituents in seeds of M ₃ generation of horsegram cv. Dapoli Kulthi-1 | 55 |
| 4.18 | Effect of gamma radiation, EMS and their combinations on activity of nitrate reductase in leaf, root and root nodules in M ₂ generation of horsegram cv. Dapoli-Kulthi-1. | 56 |
| 4.19 | Effect of gamma radiation, EMS and their combinations on activity of nitrate reductase in leaf, root and root nodules in M ₃ generation of horsegram cv. Dapoli-Kulthi-1. | 56 |
| 4.20 | Effect of mutagens on antioxidants in M ₂ generation of horsegram cv. Dapoli-Kulthi-1. | 56 |
| 4.21 | Effect of mutagens on antioxidants in M ₃ generation of horsegram cv. Dapoli-Kulthi-1. | 56 |
| 4.22 | Morphological characterization of M ₃ mutants of horsegram cv. Dapoli Kulthi-1. | 57 |
| 4.23 | Total dry biomass, number and fresh weight of nodules / plant (45 DAS) in M ₃ mutants of horsegram cv. Dapoli Kulthi-1. | 61 |
| 4.24 | Seed yield, biological yield and harvest index in M ₃ mutants of horsegram cv. Dapoli kulthi-1. | 62 |
| 4.25 | Effect of gamma radiation, EMS and their combinations on chlorophyll contents in M ₃ mutants of horsegram cv. Dapoli Kulthi-1. | 62 |
| 4.26 | Effect of gamma radiation, EMS and their combinations on organic constituents in M ₃ mutants of horsegram cv. Dapoli Kulthi-1. | 62 |
| 4.27 | Effect of gamma radiation, EMS and their combinations on activity of nitrate reductase in leaf, root and root nodules in M ₃ mutants of horsegram cv. Dapoli-Kulthi-1. | 63 |
| 4.28 | Effect of mutagens on antioxidants in M ₃ mutants of horsegram cv. Dapoli Kulthi-1. | 63 |
| 4.29 | Mineral constituents in leaves of stable mutants of horsegram cv. Dapoli Kulthi-1. | 64 |
| 4.30 | Mineral constituents in seeds of stable mutants of horsegram cv. Dapoli Kulthi-1. | 64 |
| 4.31 | Nutrient quality in seeds of M ₃ mutants of horsegram cv. Dapoli Kulthi-1 | 67 |
| 4.32 | Soil characteristics of experimental field under M ₃ generation of cv. Dapoli Kulthi-1. | 67 |