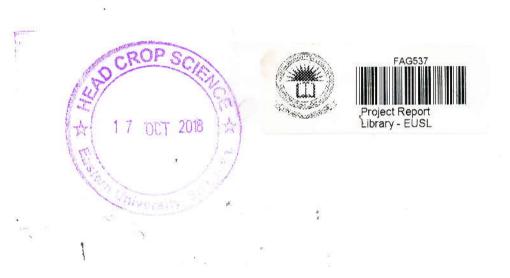
ASSESSING WATER STRESS CONDITIONS OF TOMATO (Lycopersicon esculentum Mill.) BY USING THE POLYETHYLENE GLYCOL AS OSMOTIC INDUCER



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ABSTRACT

This experiment was carried out to determine the effect of water stress on in vitro organogenesis of tomato KC-1 cultivar. First experiment was aimed to observe the seed germination percentage and seedling performance on MS media containing 2 mg/l BAP supplemented with different concentration of (0, 30, 60, 90 g/l) Poly ethylene glycol (PEG) to induced water stress artificially. MS media fortified with 0 g/l (control) PEG treatment exhibited better seed germination percentage (87.78%) and seedling performance while the minimum value of seed germination (21.93%) was noted under 90 g/l PEG treatment at 20 days after culture. Inferential statistics form of regression analysis proved the negative association between PEG concentration and all the estimated parameters such as shoot length, root length, fresh weight, dry weight, chlorophyll a, chlorophyll b and total chlorophyll content of the in vitro grown tomato seedlings. Pearson correlation was determined the strength and direction of associated that exists between two continuous variables. The results indicated that there was a significant positive correlation between the each two independent variables.

Response of cotyledon and hypocotyl of tomato KC-1 under different water stress levels was also studied for *in vitro* organogenesis. Cotyledon and hypocotyl explants were excised from 4 weeks old tomato seedling which was grown under *in vitro* condition and they were cultured for callus induction on MS medium containing 2 mg/l BAP supplemented with different concentrations of PEG (0, 30, 60 and 90 g/l). *In vitro* response percentage of cultured explants, which is sign to produced callus and colour of initiated callus were determined at 4 weeks of culture. Results revealed

TABLE OF CONTENT

Contents

| ABSTRACTi |
|---|
| ACKNOWLEDGMENT iii |
| TABLE OF CONTENTiv |
| LIST OF TABLES viii |
| LIST OF FIGURESix |
| ABBREVIATIONxi |
| 1.0 INTRODUCTION |
| 2.0 REVIEW OF LITERATURE6 |
| 2.1 Tomato and importance |
| 2.2 Scientific classification |
| 2.3 History and Origin |
| 2.4 Tomato production in the world |
| 2.5 Tomato Production in Sri Lanka9 |
| 2.6 Ecological Requirements |
| 2.7 Characters of KC- 1 variety11 |
| 2.8 Botanical description |
| 2.9 Proximate composition |
| 2.10 Conventional Propagation of Tomato |
| 2.11 Drought as an abiotic stress |

| 2.12 <i>In vitro</i> selection of drought-tolerant plants |
|---|
| 2 .13 Action of Polyethylene glycol |
| 2. 14 PEG assay15 |
| 2.15 In vitro screening of tomato for drought tolerance |
| 2.16 In vitro studies of tomato |
| 2.17 <i>In vitro</i> shoot proliferation17 |
| 2.18 Principles of Plant Tissue Culture |
| 2.19 Micropropagation |
| 2.20 Explant types19 |
| 2.21 Culture medium |
| 2.21.1 Macronutrients |
| 2.21.2 Micronutrients |
| 2.21.3 Vitamins |
| 2.21.4 Carbon source |
| 2.21.5 Solidifying Agents or Support Systems |
| 2.21.6 Growth Regulators |
| 2.21.6.1 Effect of cytokinin as a growth regulator25 |
| 2.22 Microbial contamination |
| 2.23 In vitro propagation of tomato27 |
| 2.23.1 Direct organogenesis |
| 2.23.2 Somatic embryogenesis |
| 2.24 Acclimatization29 |

| 3.0 MATERIALS AND METHODS |
|---|
| 3.1 Sterilization of culture vessels |
| 3.2. Preparation of stock solutions |
| 3.3. Preparation of culture media |
| 3.4 Sterilization of tomato seeds |
| 3.5 Experiment 1 |
| 3.5.1 Seed germination percentage |
| 3.5,2: Shoot and root length of seedling |
| 3.5.3 Fresh and dry weights of shoot and root |
| 3.5.4 Determination of chlorophyll content of leaves |
| 3.6 Experiment 2 |
| 3.6.1 Colour of the initiated callus |
| 3.6.2 <i>In vitro</i> response percentage of cotyledons and hypocotyls |
| 3.7 Statistical analysis |
| 4.0 RESULTS AND DISCUSSION |
| 4.1 Experiment 13 |
| 4.1.1 Effect of water stress on seed germination % |
| 4.1.2 Effect of water stress on length of shoot in tomato seedling4 |
| 4.1.3 Effect of water stress on length of root in tomato seedling4 |
| 4.1.4 Effect of water stress on fresh weight of in vitro growing tomato |
| seedling4 |
| 4.1.5 Effect of water stress on dry weight of in vitro growing tomato seedling .4 |

| 4.1.6 Effect of water stress on chlorophyll a content of leaves |
|---|
| 4.1.7 Effect of water stress on chlorophyll b content of leaves of tomato |
| seedling50 |
| 4 1 8 Effect of water stress on total chlorophyll content of leaves of tomato |
| seedling53 |
| 4.1.9. Correlation between estimated parameters54 |
| 4.2. Experiment 2 |
| 4.2.1 Effect of water stress on colour of the cultured explants58 |
| 4.2.2. <i>In vitro</i> response % of the cultured explants |
| |
| 5.0 CONCLUSION63 |
| RECOMMENDATION |
| REFERENCES |
| Appendix I |
| Appendix I |
| Appendix II |