Data Article

Data on the cost effective surface sterilization method for *C. carandas* (L.) seeds and callus induction from aseptic seedling

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**ABSTRACT**

Surface sterilization of explant is an important and most sensitive step in plant tissue culture. Inappropriate concentrations of sterilants have lethal effect in cell division and it restricts growth and development of explant. Therefore, suitable concentration, combinations and duration of exposure of sterilant is essential to raise in vitro cultures successfully. This data demonstrates use of various sterilizing agents for aseptic plantlet germination from seed of *Carissa carandas* (Apocynaceae). The present dataset provides information in support of cost-effective explant sterilization potential of benzalkonium chloride containing commercial bleach (Lizol) and its comparison with traditionally used surface sterilants in plant tissue culture i.e. 0.1% HgCl2 alone and in combination with 70% alcohol. The data on callogenic response using MS medium supplemented with plant growth regulators is also shared.

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**Specifications Table**

| Subject area                  | Biology                        |
|-------------------------------|--------------------------------|
| More specific subject area    | Explant sterilization and callus induction |

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Type of data: Text file, tables and figures
How data was acquired: Using plant tissue culture technique.
Data format: Analysed
Experimental factors: Explant (seeds of C. carandas) sterilization using chemical sterilants like benzalkonium chloride (0.1%) alone and in combination with 70% alcohol and 0.1% HgCl₂ alone and its combination with 70% alcohol to get aseptic plantlet in MS (Murashigue and Skoog) medium.
Experimental features: The aseptic plantlets resulting after sterilization therefore used for callus induction study. The leaves of aseptic seedling treated using various concentrations and combinations of plant growth regulators used to analyze callogegenic response.
Data source location: North Maharashtra, MS, India. (21.26°N and 75.11°E). Data analysis: Shirpur, MS, India
Data accessibility: The data is available with this article.

Value of data
- This data provides information about use of cheaper sterilant for effective explant sterilization and to reduce the cost of process.
- The data is valuable for the selection of appropriate sterilization method for recalcitrant seeds of some medicinal, horticultural plants as well as for other delicate and sensitive explants.
- The data provides information to induce friable and embryogenic callus using the proposed concentrations and combinations of PGRs.

1. Data

The data shared in this article is sterilization efficacy of benzalkonium chloride and callogegenic response in presence of different PGRs. The significant difference in seed germination with the
treatment using treatment code S1MS and S3MS even after 90 days of incubation indicates the adverse effects of HgCl2 on germination of C. carandas seeds (Fig. 1). This data also reveals that effect of PGRs treatment towards callogen response and best response was recorded in media code A3 and B6 with friable callus (Fig. 2) while media code A4 gave embryogenic callus (Fig. 3).

2. Experimental design, materials and methods

Seeds of C. carandas are recalcitrant and having low viability, poor germination and they are most sensitive to chemical treatment [1,2]. Hence, these seeds were used to investigate the effect of various sterilants to remove surface born microorganism without any adverse effect on seeds.
2.1. Treatment of C. carandas seeds with different sterilants to get aseptic seedlings

The sterilants used for explant sterilization with their concentration, combinations, and time of exposure are shown in Table 1.

2.2. Treatment of leaves of aseptic seedling with PGRs to induce callus

Leaves of aseptic seedlings were used as explant for callus induction. The PGRs like NAA, 2,4D (auxins) and BAP, Kinetin (cytokinins) were used at various concentrations and combinations for callus induction study. The callus induction protocol was grouped into two experimental units according to PGRs treatment. The outline of the protocol is shown in Table 2.

2.3. Data analysis

The data obtained were analysed using an analysis of variance (ANOVA) and means were performed by the Duncan’s multiple range test.
Acknowledgments

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Appendix A. Supplementary material

Supplementary data associated with this article can be found in the online version at http://dx.doi.org/10.1016/j.dib.2016.04.047.

References

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