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Evaluation of cytological effects of three common food preservatives in relation to root growth and total protein content by using *Allium cepa* L. as a test plant

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The effects of different treatments with sodium nitrate (SN), sorbic acid (SA) and propyl gallate (PG) on the cytology, root growth and total protein content of five concentrations of preservatives ranging from 1000 ppm to 2500 ppm for 4, 8 and 16 hours. The treatments inhibit the root growth and reduced the total protein content. The concentration at 2500 ppm applied for 15 days for root growth is more toxic than other and decrease in the percentage of protein content for 16 hours was highest. Cytological analysis showed inhibitory effect on cell division in the root tips of the test plant and caused a decrease in mitotic index values. Different abnormal mitotic figures were observed in all mitotic phases. Among these abnormalities were anaphase bridges, C-mitosis, lagging, stickiness, micronuclei and unequal distribution. The total percentage of abnormalities was highest in propyl gallate and lowest in sodium nitrate. All the treatments changed the frequency of mitotic phase as compared to with the control.

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Effect of home based child care & nutrition improvement program on child mortality and malnutrition in a tribal belt: Result of field randomized control trial

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Background: In tribal part of India, most births take place in the home & most of the childhood illness is not treated properly due to scarcity of hospitals and socio economic conditions, where high-risk care practices are common. We developed an intervention of home based child care, treatment and behavior change communication, with a focus on neonatal care and illness, infectious diseases and malnutrition of under 5 children aimed at modifying practices and reducing childhood mortality & malnutrition.

Methods: We did a cluster-randomized controlled field trial in Melghat, a tribal area in Maharashtra. 40 village administrative units (population 36000) were allocated to one of two groups: a control group, which received the usual services of governmental in the area; an intervention group, which received a preventive package of interventions for essential new-born care (birth preparedness, clean delivery and cord care, thermal care, breastfeeding promotion, and danger sign recognition); intensive health, nutrition and hygiene education like hand washing, nail cutting, nutrition demonstration, flip chart and audio-visuals, treatment of childhood illness e.g. diarrhea, malaria, acute respiratory tract infections, neonatal sepsis & malnutrition. In the intervention clusters, village health workers delivered the packages. Outcome measures included changes in neonatal mortality rate, Infant mortality rate, under 5 children mortality rate and prevalence of severe malnutrition compared with the control group.

Result: There is a net reduction of 61% in still birth rate in intervention area over control area with test of significance - ($P < 0.05$). NMR shows 46.22% net reduction in Intervention Area over Control Area with test of significance 0.05 ($P < 0.05$). There is a net reduction of 51.27% in IMR in intervention area over control area with test of significance ($P < 0.01$). U5MR shows 41.64% net reduction in mortality in Intervention Area over Control Area with significance - ($P < 0.01$). Prevalence of severe malnutrition shows 50.52% net reduction in Intervention Area over Control Area with test of significance ($P < 0.01$).

Conclusion (Interpretation): The study intervention resulted in statistically significant reduction in the NMR, SBR, statistically highly significant reduction in IMR, U5MR and prevalence of severe malnutrition, in intervention area. (This in part of result or conclusion) These results are replicable for reducing child mortality and malnutrition in other backward areas as it is affordable, acceptable, approachable, achievable & safe. A socio-culturally contextualized, community-based intervention, targeted at high-risk child-care practices, can lead to substantial behavioral modification and reduction in under 5 children mortality. This study had many effects on government health policies & improved practices of people for reducing malnutrition and child deaths.

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