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## Immobilization of *Saccharomyces cerevisiae* as an advanced approach using gellan gum phytagel beads in pomegranate wine production

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Pomegranate fruits (*Punica granatum*) are rich in polyphenols, particularly ellagic acid and punicalagins, both of which can act as potent antioxidents. The distinctive of the distinc act as potent antioxidants. The distinctiveness of various varieties of pomegranate has significant impact on the quality of wines. It exhibit positive influence on ultimate quality of wines. The utility of immobilized cells beads in the manufacturing of pomegranate wine is a speedily growing research zone with potentially superior advantages as compared to free cell systems. The immobilized beads of gellan gum (Phytagel) were prepared by using Saccharomyces cerevisiae NCIM 3095 was found as an efficient biocatalyst in pomegranate wine manufacturing. For the optimization of immobilized beads, a study was carried out using various concentrations of gellan gum, cell loading and bead width. Immobilized cell in gellan gum beads proved to be with higher rate of fermentation in comparison to free cells demonstrating suitability in pomegranate wine production. The intention of this work was to formulate cross linked (with CaCl<sub>2</sub>) gellan gum (Phytagel) beads with immobilized Saccharomyces cerevisiae cells for their use in repeated fermentation cycles of pomegranate must. The study of bead size, morphology and swelling index was done using appropriate methods. It was found that cross-linking in gellan gum beads directly influences bead size, morphology and swelling index. Chemical parameter of juice like pH, total sugar, titrable acidity was carried out at various intervals. The alcohol content in pomegranate juice must at various random time intervals was estimated by potassium dichromate method and absorbance by colorimetry at 400 nm<sup>5</sup>. The alcohol content of beads was found to be excellent in size range of 500 -1000 µm and 6-8 gm/100 ml cell loading. These results highlight the potential of immobilized gellan gum beads in repeated fermentation cycles in comparison to those obtained in the free yeast fermentation.

## Biography

More Vrunal V is currently pursuing his PhD in the field of niosomal drug delivery. He has his expertise in formulation and evaluation of various novel drug delivery systems.

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