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## Pretreatment of mosambi juice by packed column and comparison with other methods

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Clarified mosambi juice quality through different pretreatment methods were compared with new pretreatment method, such as, packed column. The packing material was used in column as glass beads (diameter 3.5 mm, void fraction 0.57). Juice quality after pretreatment with packed column support with glass beads was compared with other pretreatment methods, such as, centrifugation and fining agents (gelatin, bentonite and gelatin-bentonite combination). Feed flow rate in packed column ranged from 50 $cm^3$/hr to 500 $cm^3$/hr. Clarified juice quality in terms of viscosity, alcohol insoluble solid (AIS), was strongly dependent on feed flow rate and operating time. It was observed that at low flow rate of 50 $cm^3$/hr, treated juice viscosity decreased up to 30% due to the removal of suspended materials. In other pretreatment methods, such as, centrifugation, juice quality was dependent on machine rpm and operating time. The optimum rpm of centrifugation was 4500 and viscosity reduced only 40%. For pretreatment with fining agent, juice quality was controlled by fining agents dose. Single fining agent dose was not enough to remove all suspended pulps. Viscosity decreased up to 40% in treated juice with combined fining agents dose (gelatin: bentonite =1:5). Packed bed pretreated juice viscosity was lower compared with other pretreated methods. The operating cost of mosambi juice pretreated with column packed with glass beads was lower compared with other pretreatment methods. The pretreated juice by packed column could be directly used by other separation processes for concentration and storage.

### Biography

Vijay Singh has received his Master of Technology (M. Tech.) degree in Chemical Engineering from Indian Institute of Technology Guwahati, Assam, India, in 2009. Presently, he is pursuing his Ph.D. under the supervision of Dr. Chandan Das in the same Department. His research area includes clarification, packaging and storage study of citrus fruits.

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## Silver nanoparticles embedded biodegradable polystyrene food packaging system for inpatients in hospital

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Globally, life and health care related infections are a major problem which is creeping the inpatients safety in most of the hospitals. In spreading the microbial contaminations, unhygienic food packaging systems in already immune compromised inpatients will enhance the chances of aggravating the patients' health problems with higher probability of developing nosocomial infections. In this regard, nanotechnology is harnessing the qualities, eventually provide health which operates purely for a preventative state, identifying and stopping potential sources of disease or illness in the body before they even get started. In the applied research work we focus on using silver nanoparticles embedded biodegradable polystyrene material as a food packaging systems in inpatients. Efficacy and safety of these silver nanoparticles impregnated food packing materials are studied by *in vitro* evaluation studies against lethal microorganisms like gram positive bacteria methicillin resistant *staphylococcus aureus, streptococcus* pneumonia,gram negative bacteria *pseudomonasaeuroginosa, Escherichia coli*, fungi *candida albicans, streptococcusneoformans*. The research study is done using bread as a model exposing to the microbes mentioned above.The rotting action and the decaying time is observed for 3 days,by packing with silver nanoparticles embedded polystyrene food packaging material.The silver nanoparticle food packaging system is compared against rational packaging system and superlative results are found stating their effectiveness against lethal microorganisms and freshness of the bread inside the novel packing system is maintained even after 3 days at ambient conditions.

### Biography

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