

## Plant Seed Components as Pharmaceutical Excipients: Give a thought!

“Pave a Way to Save Mother Nature”.

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**Introduction:** The present research focuses on Environment Concern Activity, work being based on Natural Seed components like Mucilage, Hemicelluloses, and Starches etc. Here we are engaged with various research activities involving Isolation, Preparation, characterization and designing of dosage forms utilizing various seed components to study the performance of excipients in terms of functionality and applicability in dosage form design. To name some of the experimental candidates viz-*Mucuna pruriens* seeds, (Velvet beans); family: Fabaceae, Flax Seeds (*Linum usitatissimum*; family: Linaceae), Fenugreek seeds (*Trigonella foenum-graceum*; family-Fabaceae), *Oscimum basilicum*, (sweet basil ) Family; Lamiaceae / Labiatae – Mint *Plantago ovata* ,family; Plantaginaceae, are studied and found to be applicable and functional to consider their candidature for further characterization and standardization work in detail.

**Aims:** Understanding the Pharmaceutical Applicability and Functionality of natural seed components in tablet dosage form design as excipients.

**Methods:** Suitable isolation methods considering mucilages, hemicelluloses and starches etc in various seed candidates were selected. Characterization study like FTIR, DSC, XRD, SEM etc were performed. Tablet Dosage forms were designed and developed and optimized using suitable experimental designs. Data profiling and analysis was performed to determine the release kinetics. Interpretations and conclusions were derived.

**Results:** All the seed components under study were found to be functional and applicable as tablet dosage form excipients having properties of binders, disintegrant, release retardants, components with cross linking potentials etc. Analytical characterizations highlighted the suitability of excipients in terms of stability in the compositions. Some of the components had pH specific release behavior. Release mechanism found like, Higuchi, Hixon Crowell, Korsmayer Peppas etc were indicative of thought process in dosage form designing and targeting as applicable. Amorphous nature of some components, Glassy to rubbery transitions as interpreted by DSC studies gave the directives for transition of excipient components characteristics based on curing experimentation etc. Biopharmaceutical characterizations were helpful to decide the target locations for dosage for design. Overall, works performed generated the interest to characterize the excipient components in detail as per compendial requirements.

**Conclusions:** All the natural excipient components utilized in studies were found to be functional and applicable in design of tablet dosage form. Now the focus is on compendial characterization and standardization in depth as per the excipient guidelines. Successful completion of project will be beneficial to compendial regulatory bodies working on monograph preparation and standardized data generation of the natural components. Industries working on excipient will be interested in the project with successful completion of work. Successful outcome will be beneficial in coming up with nature friendly alternative to synthetic excipients as well as excipients prepared by sacrificing the trees. Acceptance of excipient isolated from seeds

naturally will claim for higher plantation in order to increase the yield of the seeds which is in turn an environment friendly activity.

**Think Green-----Go Green----- Save Nature----- Save Human Era----is the ultimate impact of the successful project work**

**Keywords:** Seed excipients, Natural excipients, Pharmaceutical Excipients, Velvet beans, *Mucuna Pruriens* seeds, Fabaceae, Flax Seeds, *Linum usitatissimum*, Linaceae, Fenugreek seeds, *Trigonella Foenum- Graceum*,