

# Case Study | BonuTab<sup>®</sup> Premix for Direct Compression of Herbal Actives

Based on the application example of green tea extracts

## SITUATION

- There is a rise in consumption, thus production of alternative health supplements like herbal extracts.
  - Some commonly used excipients are preferably avoided to label
- herbal supplements as natural or clean labelled.
- Properties of herbal extracts might vary due to species, geography, harvesting season, and cultivation conditions.
- Many herbal tablets are bottle packed, therefore, friability and hardness are important parameters.
  - Most herbal ingredients have **strong odors or bitter tastes** and variable colors that affect acceptability.

## CHALLENGE

- Herbal powders are often fibrous, fluffy, or hygroscopic, leading to poor flow into tablet dies and inconsistent tablet weights.
  - Many herbal extracts lack inherent binding properties.
  - Wet granulation could improve flow, but many herbal constituents are sensitive to moisture-absorbing. It can cause microbial growth or degradation and wet granulation may not be suitable for some extracts.
- In certain countries, some **cellulosic excipients are not approved** for use in certain product categories, especially those labelled as "health functional foods" which include herbal formulations. In this case, formulating tablets with limited excipient choice is tough to achieve.
- Herbal actives are often low-potency, requiring high doses. To avoid large, hard to swallow tablets, the excipients need to be selected carefully for efficient processibility at low extract:excipient ratio.
  - Ensuring a stable formulation having good taste masking and appearance with minimal processing steps is a challenge.

## SOLUTION

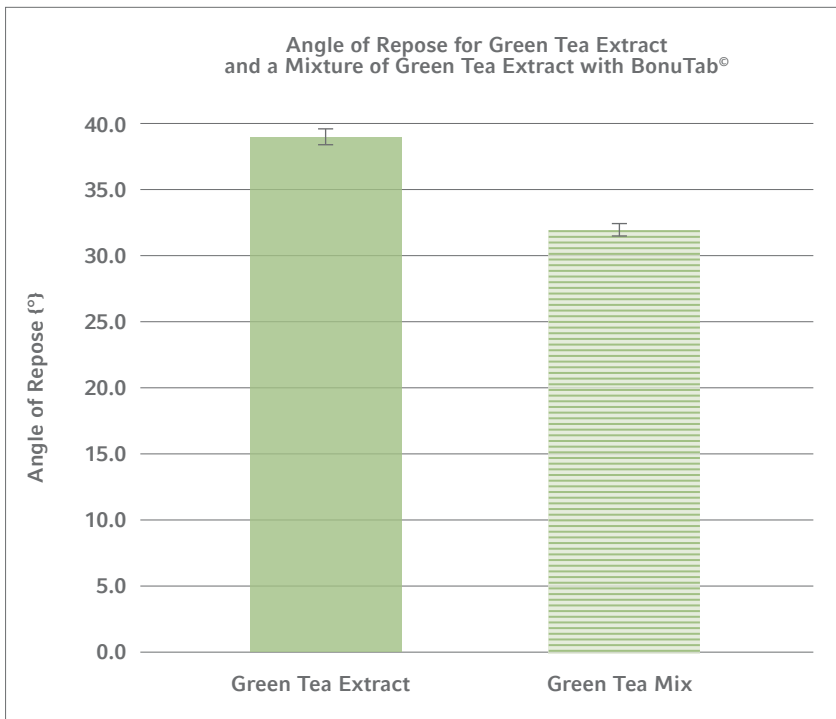
Use of **BonuTab<sup>®</sup>**

- A completely formulated tableting system from BIOGRUND, developed using our expertise and knowledge of synergistic excipient combination.
- It can be customized as per the dosage and properties of herbal extracts, as well as end product parameter requirement, to achieve a reliable and reproducible formulation.
- **BonuTab<sup>®</sup>** is designed for direct compression, avoiding the need for wet granulation.
  - Tablet characteristics like taste masking, color uniformity, lower tablet weight and stability can be achieved by modifying **BonuTab<sup>®</sup>** formulation.



Uncoated Green Tea Extract tablets direct compressed with customized BonuTab<sup>®</sup>.

## Improvement of flow of Green Tea Extract when blended with BonuTab®



### Formulation Green Tea Mix

- Green Tea extract: 67 %
- BonuTab®: 33 %

### Tableting Parameters

- Machine type: RoTab T laboratory rotary press
- Punch: 11 mm convex
- Production speed: 60 Tab/min
- Main compression force: 18.5 kN

### Results

- Tablet mass: 530 mg
- Tablet height: 5.2 mm
- Breaking force > 300 N
- Friability < 0.5 %
- Disintegration time < 15 min

### Key benefits

- BonuTab® helps to cut down development time
- It provides robust and standardized results
- Batch to batch consistency can be achieved
- Taste masking and core color can be achieved by modifying the formulation
- Good tablet hardness/friability can be achieved by direct compression
- Improves production efficiency for high volume, high value formulations
- BonuTab® can be customized formulated e.g. clean label / naturally formulated

## General Information on BIOGRUND

Since 1999, **BIOGRUND** has been the specialist for the homogeneous mixing of excipients and carriers. With locations in Germany, Switzerland, America and Russia, we support the food supplement and pharmaceutical industry in the development, formulation and production of solid oral dosage forms. The tailor-made and ready-to-use special powder mixtures for film coating, sugar-coating, coloring and tableting enable optimum results in a short time. Easy, fast and reliable!

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**Making tableting  
*more efficient.***

