

# 4282-070

## Pomegranate Extract – Direct Compression

**Key Words:** Pomegranate Extract, Direct Compression, Medium Dose, Health Supplement  
**JRS Products:** PROSOLV® EASYtab Nutra

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### Aim of Study

The aim of the present formulation study was to find an alternative for the commonly used soft-gel-encapsulation of pomegranate extract.

Instead, a simple, two-component formulation suitable for direct compression was developed.

### Pomegranate Extract

Pomegranates have been known for hundreds of years for their multiple health benefits, including antimicrobial activity. Research indicates that pomegranates and their extracts may serve as natural alternatives due to their potency against a wide range of bacterial and viral pathogens. Nearly every part of the pomegranate plant has been tested for antimicrobial activities, including the fruit juice, peel, arils, flowers, and bark.<sup>1</sup>

Pomegranate extract is typically administered as 250 mg dose soft-gel capsule.

Direct compression tableting is not only cheaper in production but also simplifies the formulation requirements. The goal of this experiment, therefore, was to make directly compressible 250 mg pomegranate extract tablets.



### Excipient(s) used

The high-functional excipient **PROSOLV® EASYtab Nutra** is an all-in-one composite containing microcrystalline cellulose as a filler-binder, colloidal silicon dioxide as a glidant, a disintegrant, and a lubricant. In order to fulfill the regulatory requirements of various countries, different **PROSOLV® EASYtab Nutra** grades with different disintegrants and lubricants are available.

All of these grades all have equivalent powder and tableting properties. Detailed information about the different grades are described in the JRS brochure about **PROSOLV® EASYtab Nutra**. The special co-processing during the **PROSOLV® EASYtab Nutra** production ensures the homogeneous distribution of the single ingredients within the particles and leads to synergistic effects in terms of functional properties.

**PROSOLV® EASYtab Nutra** is characterized by an excellent compactibility resulting in a mechanical robustness of the tablets combined with a fast disintegration. Furthermore, **PROSOLV® EASYtab Nutra** ensures lubrication during tablet manufacturing and provides a high robustness to over-mixing as the lubricant is fixed in the co-processed composite structure. As ready-to-use excipient, **PROSOLV® EASYtab Nutra** makes the tableting process additionally convenient and cost-efficient as only one blending step with the active is required before the mixture can be compacted into tablets.

### Formulation

Formulation	1	2
<b>PROSOLV® EASYtab Nutra</b>	60 %	50 %
<b>Pomegranate Extract</b>	40 %	50 %
<b>Pomegranate Extract per tablet</b>	250 mg	250 mg
<b>Total Tablet Weight</b>	625 mg	500 mg

Pomegranate Extract (Stauber PEXL powder, lot #B319002A)

## Procedure

**PROSOLV® EASYtab Nutra** and Pomegranate Extract were mixed for 15 minutes in a Glen Mills Turbula Mixer. Round, flat-faced tablets were then compressed using a Riva Piccola Rotary Instrumented Tablet Press at five different compaction forces.

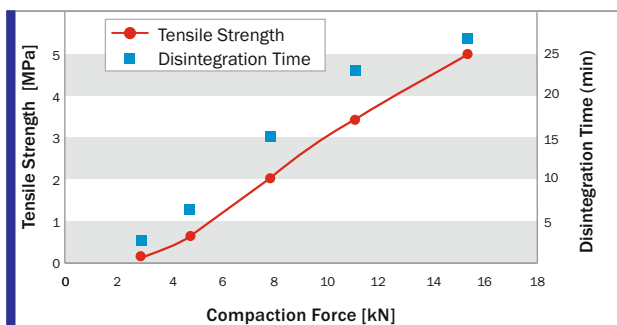


Fig. 1 Formulation 1 (40 % API Load)

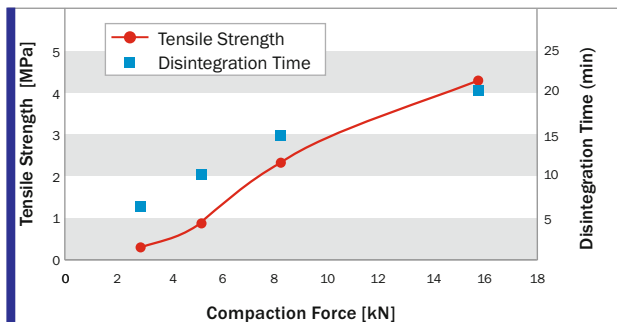


Fig. 2 Formulation 2 (50 % API Load)

## Conclusion

The **PROSOLV® EASYtab Nutra** made it possible to simply directly compress pomegranate extract into tablets with good physical integrity. Two formulations were made with 50 % and 60 % **PROSOLV® EASYtab Nutra** respectively. In general, pomegranate formulation 1 with more **PROSOLV® EASYtab Nutra** (60 %) made tablets with higher tensile strength compared to the tablets that only had 50 % **PROSOLV® EASYtab Nutra** (formulation 2). While both formulations make very hard tablets with acceptable disintegration times, additional superdisintegrant may be added if shorter disintegration times are desired.



Pic 1 Pomegranate Extract Powder (left) and Finished Pomegranate Tablets (right)

## References

[1] <https://www.hindawi.com/journals/ecam/2013/606212/>

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