TECHNICAL INFORMATION

A multicomponent excipient for the production of Orally Disintegrating Tablets (ODTs) for the food supplement industry

User-friendly form ODT release active ingredients in mouth

Bypassing liver

Optimized powder flow, enabling direct compression tablet manufacturing

Possible tablet size from 70 mg

Introduction

Orally Disintegrating Tablets (ODTs) are becoming more popular among doctors and consumers due to the advantages that they offer over traditional tablets and capsules. ODTs dissolve quickly right on the tongue with no water required and they can be taken everywhere. They offer easy administration and thanks to that a broad application for numerous consumers. ODTs facilitate consumption, especially for younger and older consumers as well as those consumers unable to swallow efficiently.

Application

ExciODT is a highly functional excipient for the development and production of orally disintegrating tablet and chewing tablet formulations. It provides functional performance for today's needs. It offers a creamy, smooth mouth feel as well as unique physical characteristics. Thanks to the natural ingredients used, it is also vegan and vegetarian-friendly, gluten and lactose-free and has a lower glycaemic index compared to other commercial carbohydrate-based excipients.
ExciODT is specifically formulated for direct tableting operations. It can be easily blended with flavors, vitamins, minerals, botanical extracts, suitable lubricants, and sweeteners, if desired, and directly compressed into tablets.

Fields of application

- Food supplements (ODTs, chewable tablets)
- Pet supplements (chewable tablets)

Composition

Tapioca starch, erythritol, bamboo cellulose, acetylated starch, silica, glyceryl dibehenate, stevia rebaudioside A

Benefits

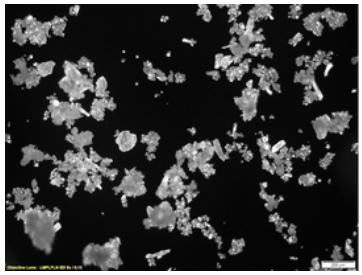
- Simple to use
- Smooth and creamy mouthfeel
- Natural composition: lower glycemic index compared to another carbohydrate-based excipient
- It's vegan/vegetarian friendly
- Gluten free, lactose free
- Directly compressible for simple manufacture
- Enhance tablet robustness
- Provide rapid tablet disintegration
- Simply add the active, dry blend, and compress

Quality

Food grade

Physical Properties

- Free-flowing, co-processed excipient
- White to nearly white in colour
- Odourless powder
- Bulk density: 0.50-0.60 g/ml
- Tapped density: 0.60-0.80 g/ml
- Mean particle size: <80 µm: NLT 80%
- Loss on drying: <10%



Picture 1. Particles of ExciODT in optic microscope

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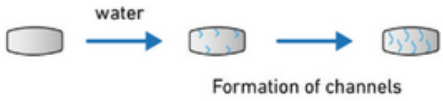
Commercialised product

Commercialised ODTs were developed using ExciODT and different active ingredients. The active ingredients were blended directly with the excipient along with flavour and lubricant.
The formulations were directly compressed in tablets. Tablets were tested for disintegration time, hardness and the results are displayed in Table 1.

Active ingredient	Tablet weight, mg	Tablet diameter, mm	Tablet hardness, N	Disintegration time, seconds (method Ph. Eur.)	Disintegration in mouth, seconds
Melatonin, Griffonia simplicifilia extract, Magnolia officinalis extract, L-theanin, Vitamins B1, B2, B6, B12	150	6	56	53	25
Baical scullcap extract, Feverfew extract, Camellia sinensis extract, Vitamins B1, B2	250	8	16	62	27
Melissa officinalis extract, Magnolia officinalis extract, L-theanin, Vitamins B1, B2, B6	250	8	56	102	30
Vitamin D3	70	5	22	124	77

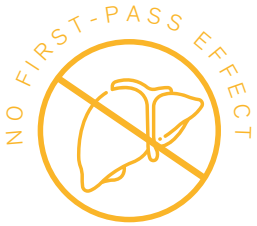
ODT excipient dynamics

To meet these criteria, the excipient will optimize the porous matrix, allowing for rapid channelling of saliva and facilitating the breakdown process. Excipients that can create a distinctive structural matrix and achieve high API bioavailability are preferred for ODT formulations, making exciODT the top choice.



Manufacturing & development

We provide also development of customized nutritional formulations based on our client´s needs and requirements.



The first-pass effect

The first pass effect or the first pass of the liver is common in classical tablets, where the active ingredient passes through the digestive tract and subsequently the liver. There being degraded and therefore reducing the effectiveness of the administrated dose.
With ODTs, there is no fist passing – the active ingredient is absorbed right in the oral cavity and the upper oesophagus, making it more effective with a lower dosage.

Conclusion

ExciODT is a multicomponent excipient for the effective development and production of Orally Disintegrating Tablets (ODTs) by direct compression, intended for the food supplement industry.
Easy administration, high efficiency of administrated dose (even at lower dosage compared to swallowing tablets) and rapid onset of the active ingredient's effect and disintegration time in the mouth of about 30 seconds on average.