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## Making food supplements as enjoyable as drinking a cup of coffee

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In today's health-conscious society, people are increasingly choosing to supplement their diet to boost their wellbeing. In fact, the use of food supplements amongst US adults has risen 10% over the last decade, reaching 75% in 2018.<sup>1</sup> Throughout Europe the use of nutraceuticals is also significant, with 46% of the UK population using dietary supplements,<sup>2</sup> and in Denmark, nutraceutical consumption is the highest in Europe, sitting at around 65% for women and 51% for men,<sup>3</sup> though supplement usage varies significantly across European countries.

Despite the popularity of food supplements, these products are often supplied in the form of tablets and capsules, which can present problems for consumers. Indeed, a recent study found that over 50% of people

experience difficulties in swallowing tablets and capsules, with many individuals also reporting that they felt these dosage forms had an unattractive odor or taste.<sup>4</sup> Furthermore, for some people, tablets and capsules are associated with treating illnesses, and these negative connotations can sometimes limit the desire to take such products on a regular basis.

Healthcare companies increasingly recognize the limitations of conventional dosage forms and are instead designing new products with the needs of the modern consumer in mind. Formulations that are easy to swallow, offer a pleasant experience, and are convenient to integrate into daily routines overcome many of the challenges associated with traditional tablets and capsules. They also provide an opportunity for healthcare companies to better differentiate their products from the competition. With an expanded range of dosage forms and new flavors, companies can better cater to the needs of their existing customer base, as well as address new market segments. In this article, we introduce one of the newest and most innovative user-friendly dosage forms and describe how it is helping to better meet the needs of our modern society.

### An easy and convenient way to deliver food supplements

HERMES NutriCaps are a novel dosage form that allow people to prepare their food supplements as hot drinks using Nespresso® hard pod coffee machines. Consumers simply employ equipment already present in their homes and workplaces to integrate nutraceutical supplements easily and conveniently into their daily routines.

HERMES NutriCaps are prepared using the machine in exactly the same way as making a cup of coffee, meaning preparation is fast, safe and easy.

### An enjoyable and consistent user experience

A large number of people find taking tablets and capsules to be a negative or, at best, neutral experience. As a result, many won't sustain regular supplement use despite having the desire to improve their health. In contrast, when food supplements are prepared as pleasant-tasting hot drinks, for example, the experience can become an enjoyable daily ritual, much like having a cup of coffee. By making nutraceutical products pleasant and convenient to take, healthcare companies can offer consumers desirable products that help them to achieve and maintain their health resolutions.

When it comes to designing formulations that are taken as hot drinks, ensuring a pleasant taste, smell and appearance becomes more important. However, creating great-tasting nutraceutical products can prove to be a challenge, especially when working with natural extracts or protein-based ingredients. As many of these ingredients have an unpleasant taste and may develop an uninviting 'foamy' appearance after dissolving, it is important to carefully design each formulation in order to deliver an enjoyable experience.

For example, when HERMES PHARMA developed a NutriCap to promote healthy digestion, the company had to overcome the bitter taste of the artichoke and milk thistle extracts included in the product. A combination of taste-masking and flavoring excipients was used to create a pleasant flavor, and special care was taken to control color, sedimentation and foaming. By using these strategies, the company was able to develop a flavorful hot drink with an attractive taste, appearance and smell.

Preventing carryover contamination is another important aspect of formulation development. Having ascertained that coffee doesn't produce a carry-over taste in subsequent drinks made with the same machine, HERMES PHARMA needed to make sure that the use of a product in a NutriCap would not then impact on the taste of subsequent cups of coffee. To prevent this issue from occurring, the supplier ensured its formulation dissolved quickly and completely. Indeed, high-performance liquid chromatography studies have confirmed the absence of product carryover when using HERMES NutriCaps, revealing no contamination of subsequent drinks. Moreover, in a recent consumer survey, 84% of respondents who used

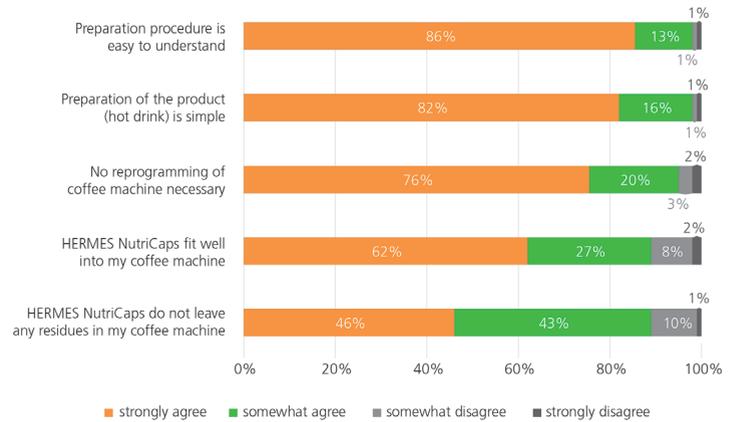


Fig. 1: A recent study with more than 200 consumers showed that 98.6% of the participants agreed that the preparation procedure was easy to understand, and 98.1% found the drink simple to prepare. The vast majority of participants also confirmed that HERMES NutriCaps did not leave any residues in their coffee machine.

these capsules reported that the pods had no impact on the taste of a coffee prepared afterwards in the same machine.

For healthcare companies producing nutraceuticals and food supplements, safeguarding content uniformity as well as quality is also important. Ensuring that consumers receive the same quantity of nutrients with each dose is necessary to maintain product safety and effectiveness and to meet regulatory obligations. To achieve reliable dosing in every capsule, HERMES PHARMA employs specialist knowledge, equipment and expertise in the manufacturing process.



Fig. 2: In contrast to hard pod coffee capsules, HERMES NutriCaps products consist of very fine powders and mixtures of ingredients with different characteristics. Thus, to fill ingredients into the capsules homogeneously and precisely so that content uniformity is ensured and specification limits met, the dosing unit of the OPTIMA CFR 2-2 capsule filler rotary machine was specially modified. (Photo® OPTIMA consumer GmbH)

This enables the delivery of products that always contain the same amount of nutrients and ingredients, and makes sure that the contents of each pod are reliably dispensed into the cup. Moreover, HERMES NutriCaps have a shelf life of at least 24 months, and the nutrients in each freshly prepared hot drink remain stable for at least one hour. Through careful design and the application of innovative formulations, this new dosage form is helping healthcare companies provide consumers with a safe and enjoyable way to take their supplements.

### Designing food supplements that meet modern consumers' expectations

Thanks to the latest advances in user-friendly dosage forms, healthcare companies are better able to meet the needs of modern consumers. New dosage forms such as HERMES NutriCaps offer a flavorful, safe

and easy-to-use alternative to traditional tablets and capsules that users can integrate smoothly into their daily routines. Such products represent a significant step forward in adapting supplements to satisfy the expectations of today's consumers, and they are set to help more people overcome the barriers to a healthier lifestyle.

### References

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<sup>2</sup>Nutritional supplement growth in the UK. Published 30th November 2018. <https://www.rainuk.com/nutritional-supplements-in-the-uk/> Accessed August 2019.

<sup>3</sup>Skeie, G., et al. Use of dietary supplements in the European Prospective Investigation into Cancer and Nutrition calibration study. *Eur J Clin Nutr.* 2009 Nov; 63 Suppl 4:S226-38.

<sup>4</sup>A Hard Truth to Swallow? HERMES PHARMA. [www.swallowingtablets.com](http://www.swallowingtablets.com). Accessed August 2019.

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