

Microbial reduction for plant-based raw materials

The demand for naturally treated goods with a reduced germ count is growing. As an industrial supplier, in addition to refining raw materials, **Kräuter Mix** has also been reducing the germ count of natural products for over 20 years.

The demand for low-intervention, naturally treated, dried plant-based products has been on the rise for years. This is in light of significant changes in consumer eating and cooking habits, as well as their awareness of safety. The proportion of goods with a reduced germ count at Kräuter Mix accounts for around a quarter of total production. All five germ reduction plants – the latest commissioned in 2021 – use state-of-the-art technology to minimise the base microbiological contamination of herbs, vegetables and spices in accordance with legal and customer requirements.

The products are treated with saturated steam and heated very quickly. Pathogens such as salmonella, sporulators or enterobacteria can naturally contaminate plant-based raw materials. Without using any chemicals, this process nips any potential pathogens in the bud. The process, which exclusively uses physical methods, works in a similar way to a pressure cooker.

Natural microbial reduction

Kräuter Mix is dedicated to meeting the high environmental and quality standards it has set itself. As such, out of principle, the company completely refrains from using any forms of irradiation that are subject to declaration. Indeed, on a global scale, especially in Europe, consumer acceptance of such irradiated or chemically treated products is extremely low – and continues to fall. When it comes to food safety, the crucial factor in natural saturated steam treatment is ensuring the optimum interaction of temperature, pressure and time, without impairing the sensory quality of the goods. Kräuter Mix uses two different but equally effective processes for natural microbial reduction, which are also available for subcontracting. At large-scale



Kräuter Mix is able to draw on over 20 years of experience in the field of natural microbial reduction.

facilities for ongoing production, the goods are transported via pneumatics and elevators into an autoclave, where they are exposed to saturated steam for several seconds before the moisture is once again removed in a fluid bed dryer. Alternatively, in batch facilities for smaller and more flexible production orders, the goods undergo repeated vacuum and steam treatments in a special chamber to ensure a lower germ count. The goods are then dried during the final vacuum treatment.

With just a few exceptions, saturated steam treatment for microbial reduction is suitable for all plant-based materials in any processed forms, including organic goods.

High-quality production

All five germ reduction plants at Kräuter Mix are validated according to specifications set out in a process plan. Currently, the batch facilities at Kräuter Mix maintain production in line with certified Good Manufacturing Practice (GMP) standards, which promotes the highest hygiene and health-and-safety requirements. In future, there will also be

two additional large-scale facilities for ongoing production.

Flowers, leaves, herbs, fruits, seeds, roots, rhizomes, barks and fungi that are frequently affected by deviations in microbiological results are all examined. The results for these ‘worst-case scenario’ products are then used to draw conclusions for all products across the different product groups.

Kräuter Mix is currently in the process of further digitalising its tried-and-tested production technology and adding further management technology. As part of the digitalisation processes, state-of-the-art technologies such as cloud networks, artificial and business intelligence will be used going forward. Retrofitting facilities and establishing a machine-controlled process management system will allow continuous data exchange during production – from goods management directly to the facilities and back again. This will allow data from the value-added process to be evaluated with ease. ●

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