

The safe added value of stainless steel skewers

Anyone that has been served a kebab at a barbecue knows that it can be served on a bamboo skewer or on a stainless steel skewer.

Until now, subjective arguments have mainly been used to plead in favour of bamboo or stainless steel. Stainless steel boasts a higher-quality appearance and is 100% recyclable whereas bamboo affords the skewers a naturally light touch.



Linum Europe NV develops its own line of stainless steel skewers under the brand name Lineoplus. Linum Europe wanted to take a more in-depth approach to this product line and joined forces with Ghent University to conduct a scientific study. The study was conducted at the Department of Applied Biosciences in the Faculty of Bioscience Engineering.

The aim of the study was to take a broader look at the differences between bamboo and stainless steel skewers in terms of their microbiological, physical and chemical properties. The study started at the point where the skewer is displayed in the refrigerated counter and continued until the meat is cooked, ready to be served from the skewer. The study was conducted using beef and chicken kebabs.

What did the study teach us?

In the first instance it examined the multiplication of microorganisms on raw meat when it is displayed in the refrigerated counter as well as on cooked meat if you were to store the leftovers in the refrigerator for a short while afterwards. Controlling the multiplication of microorganisms is the ultimate method for combating the risk of food infections.

With the raw meat it was shown that on the first day the number of microorganisms on the bamboo skewer had increased by a factor of ten compared with the stainless steel skewer. With the cooked meat, after the BBQ, it was clear that the spread of bacteria was slower on the stainless steel skewer compared with the bamboo skewer.

We can also briefly reveal that the stainless steel skewer offers the advantage that it warms up faster on the BBQ, which means that the meat cooks more quickly on the inside. An obvious conclusion is that stainless steel is an effective heat conductor compared with wood, or even grass, because bamboo actually belongs to the grass family.

The most technical analysis involved in the study was the chemical analysis that looked for PAHs (polycyclic aromatic hydrocarbons). In the food industry it is crucial that contaminants are prevented in all foodstuffs. One example is carcinogenic (cancer-causing) substances that are strictly regulated and which must be avoided at all costs. PAHs belong to this group. They can form when food is barbecued as well as when flammable substances are heated.

The test involving the bamboo skewers with chicken, specifically chicken because it needs to cook for longer, revealed that the formation of PAHs is real. No PAHs formed on the chicken cooked on the stainless steel skewer or they remained below the detection limit of the measurement apparatus.

The obvious conclusion is that the high quality of the stainless steel material also reflects on the food safety of the meat skewers it is used to produce. First and foremost when the meat is stored prior to and after the barbecue, bacteria multiplication on the stainless steel skewers is significantly lower. But above all, the risk of carcinogenic substances (PAHs) forming on stainless steel skewers is zero, even for types of meat that require a longer cooking time! And an additional benefit that will please the chef is that on a stainless steel skewer the meat heats up more evenly from the inside out.

Mr Jan Vanderbeke, ir.
Linum Europe NV
Lineoplus stainless steel skewers
www.linum.eu

Ghent University
Faculty of Bioscience Engineering
Department of Applied Biosciences
Food Science and Technology research group
www.ugent.be/bw