Advice 09-2016 of the Scientific Committee of the FASFC on the growth of *Listeria monocytogenes* in raw milk homestead butter

Background & Terms of reference

There is no clear scientific evidence if growth of *Listeria monocytogenes* is possible in butter. A request for advice has been submitted to the Scientific Committee to evaluate whether *Listeria monocytogenes* grows in raw milk homestead butter.

Methodology

The Scientific Committee has evaluated the provided studies concerning *Listeria monocytogenes* in butter, as well as the results of the control program of the FASFC. In addition, results from the international scientific literature were evaluated. Subsequently, the Scientific Committee has, based on the results from the studies, from the control program and from the scientific literature as well as based on expert opinion, made a risk estimation. Also, recommendations are made on performing challenge tests and/or durability tests for *Listeria monocytogenes* in butter in order to ensure the food safety.

Results

There exists a great variation in the production processes and the types of butter. The probability of growth of *Listeria monocytogenes* is primarily dependent on the strength, the speed and the stability of the acidification and consequently, on the natural occurrence or the addition of ferments as well as on the salt content (and the a_w) of the butter. In general, it appears from the supplied studies that the probability of growth of *Listeria monocytogenes* in butter is rather zero. However, from the submitted studies and the scientific literature it also appears that there exists a great variability in the pH and a_w values of the homestead butter and that these physicochemical parameters can vary within a batch and keep evolving during the storage of this batch. The worst case conditions of production and storage of homestead butter are not always covered by the available studies or by the scientific literature to assess the growth potential of *Listeria monocytogenes*.

Conclusion

The Scientific Committee concludes that raw milk homestead butter is a low risk product with regard to the growth potential of *Listeria monocytogenes* if natural or added ferments provide a sufficiently strong, fast and stable acidification (during the entire shelf-life period) and/or if the butter has a sufficiently low a_w value or high salt level. However, given the observed high variability in the production processes and the types of homestead butter, it is not possible to make a general statement about the growth potential of *Listeria monocytogenes* in all types of homestead butter in Belgium based on the available data. Hence, the Scientific Committee cannot unambiguously answer the question whether growth of *Listeria monocytogenes* in raw milk homestead butter is possible. Therefore, it is recommended to conduct research on the limits of growth of *Listeria monocytogenes* in raw milk homestead butter under various combinations of pH and a_w (or salt content). This should be realized with the aid of challenge tests and/or durability tests taking into account the worst case scenarios. If such conditions are set from the production and are maintained until the end of the shelf-life (under conditions of a specific time/temperature combination), a statement can be made for all types of homestead butter within the limits of those conditions.

The full text is available on this website in dutch and in french.