7. Summary

Detection of Salmonella in Spices:
Necessity of a Pre-enrichment in Relation 1:100

The detection of Salmonella in spices can be difficult, because some substances of spices and herbs are able to inhibit microbial growth. One common way to neutralize the bacteriostatic effect from spice-components/ ingredients, is to augment the pre-enrichment relation. Therefore, the method of detection of Salmonella from spices and herbs (Amtl. Sammlung von Untersuchungsverfahren 00.00-20, § 35 LMBG) lay down a pre-enrichment in relation 1:100 (sample:peptonwater). The consequence of this method by having a large number of samples, is an unpractical and voluminous supply of pre-enrichment material. With scope to evaluate the necessity of these wide pre-enrichment-relations, 36 samples of different diluted spices were inoculated with Salmonella and heatinjured Salmonella and were examinated under different pre-enrichment-relations (1:20/ 1:50/ 1:100). The bacterial contamination of the spices was controlled before the tests were started. Growthdata were noticed from Salmonella without any influence to compare these processes of spice-inhibition. The results show three different patterns:

1. no influence to the growth of Salmonella
2. bacteriostatic effect without inhibition
3. total bacterial inhibition.

The gained results revealed that a 1:20 dilution was sufficient for 26 spices to detect injured Salmonella, even at a low contamination level. For basil, galgant, ginger, garlic, marjoram, cloves, peppermint and mustardseeds, a 1:100 pre-enrichment was necessary. Due to the stronger antimicrobial effect a higher dilution is recommended for oregano and cinnamom.