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Matrix Extension Study of the iQ-Check Salmonella II and iQ-Check STEC VirX Real-Time PCR Methods for Hemp Flower

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Abstract: The Bio-Rad iQ-Check Salmonella II and iQ-Check STEC VirX Real-time PCR kits are used to screen for Salmonella and STEC species in a variety of products. The objective of this study was to evaluate the effectiveness of these two assays in the detection of target Salmonella and STEC species in dried hemp flower (< 0.3% delta 9-tetrahydrocannabinol (THC)) at a 25 g test portion size. Dried hemp flower was artificially co-inoculated with Salmonella Typhimurium and E. coli O157 at a low fractional level (n=20) and a high level (n=5). Matrix was enriched 1:10 with Buffered Peptone Water and incubated at 37°C for 20 hours. Results of the candidate methods were compared to the cultural confirmatory methods outlined in AOAC SMPR 2020.002 and SMPR 2020.012. Data analysis comparing the candidate method results and the culturally confirmed results showed no statistically significant difference between the two methods. The Bio-Rad iQ-Check Salmonella II and iQ-Check STEC VirX kits allows end user to obtain presumptive results for both Salmonella species and STEC species using a single, one day enrichment and lysis procedure.