GFRSS LEARNING

Food Safety Laboratory Capacity Building

Module 3 Quiz – Answer Key

1. What is the advantages of LFDs compared to others analytical methods? Explain with your own words.

Only one step, quick and user friendly. Can be used at POC.

2. Your colleague does not understand what the hook effect is and what could be the issues caused by this effect. Explain with your own words.

Samples with high concentrations of the targeted contaminant will do not produce a coloration at the test line (or a small one), resulting in potential false negative results. (For sandwich LFD only)

3. Your colleague uses a competitive LFD format. He is very happy because no coloration is appearing at the test line. Explain to him why he is misinterpreting this result.

Like for ELISA, an inverse relationship between antigen concentration and substrate turnover is produced in competitive LFD format. The absence of a coloration at the test line indicate that the tested sample is contaminated by the targeted molecule.

4. You test a supposedly very contaminated sample. Yet you get a negative result with your LFD. What could explain this result and what can you do?

It is probably the hook effect or an interferent.

If you suspect a hook effect, dilute the sample and restart.

If you suspect an interferent, add a cleaning step or a sample preparation.

5. Choose whether it is worth using an LFD (Limit of detection / quantification: 10 ppm) in the following situations. Justify:

a. Test a runoff water sample, result expected in two days, no legal limit. Yes, as a rapid method.

b. Test a sample of wheat, expected result as quickly as possible, no legal limit. Yes, but there is a need for a sample preparation as the sample is solid. Validation of the technique for this kind of sample may be required.

c. Test a water sample, result expected in two days, legal limit of 20 ppm. Yes, as a rapid method.

d. Test a water sample, expected result as quickly as possible, legal limit of 2 ppm. Yes, as a rapid method, but the LOD is too high, so all the negative samples must be tested.

e. Test a wheat sample, expected result in two days, legal limit of 2 ppm. The LOD is too high and there is a need for a sample preparation as the sample is solid. I would not recommend to use a LFD method in this situation.