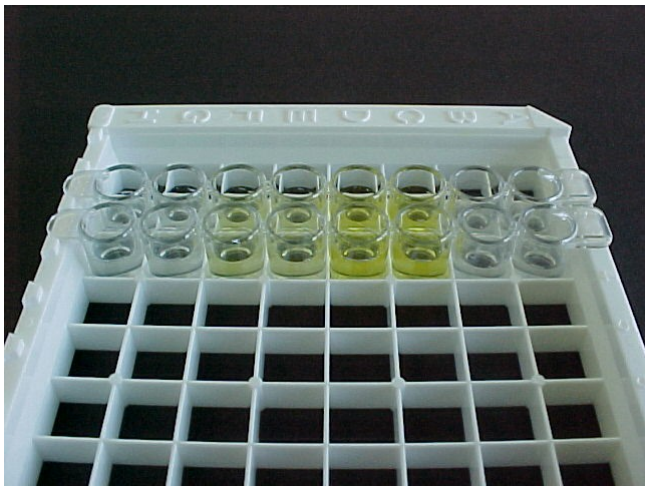
MAIA Pesticide MultiTest

Colorimetric system for the detection of organophosphate, organochloride and carbamate pesticide residues in water, food and drink



The method of Acetylcholinesterase – *Microplate Acetylcholinesterase Inhibition Assay* (**MAIA**) – for the detection of organophosphate, organochloride and carbamate pesticides residues in hydro-acetonitrilic extracts of solid/liquid food matrices is based on testing in microtitre plates of Acetylcholinesterase (AChE) activity inhibition by pesticide molecules, that belong to three important families.

It is a semiquantitative analytic method called *screening method*, or first level method.

AChE is preincubated with the desiccated extract to accentuate the inhibition effect on AChE by pesticide, eventually present in the food matrix in examination.

Afterwards the enzyme-extract system is integrated with an appropriate reaction substratum, the acetylthiocholine, and with a cromogenic detector for thiocoline that has developed.

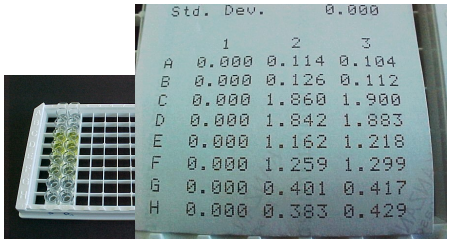
The reaction is stopped by a denaturant of the enzymatic protein.

Proceed to the interpretation of results by absorbance measures through microplate reader, or by direct visual evaluation of pesticide titres through colour comparison to the control column.

The method performs a biological test in which the analyte pesticide is selectively intercepted bacause of its specific "noxious" action on a critical physiological event of the animal organism, the AChE activity in nervous and neuromuscular junctions.

The kit also includes tools as:

- measuring tube to take MAIA® Salts
- magnetic stirring bar
- reservoir for multichannel pipette



The control columns contain wells for matrix-blanks, negative control, positive control in two titers of pesticide.

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TEST PROCEDURE

1

- Introduce 4 mL of milk (or homogenized food sample) in a test tube.
- Add 4 mL of acetonitrile.
- Shake strongly for 1′ roughly.

2

- Add 2 g of salts.
- Shake strongly for 1′ roughly.
- Centrifuge at 3000 rpm per 10'. The postcentrifugation supernatant is the **Extract**.

3

- Dispense 100 µL of each Extract into wells for Samples.
- **Desiccate** the Extracts in wells under a direct air flow, at room temperature.

4

- Prepare the **MEDIUM solution** by adding **3.5 mL** of ultrapure water to one vial of freeze-dried MEDIUM. Shake gently the vial untill dissolution. Dispense the MEDIUM solution into the basin for multichannel pipette.
- Add **100 µL** of **MEDIUM solution** by multichannel pipette into all wells.

5

- Cover the microplate through the supplied sealing film.
- Preincubate on the microplate shaker for 50' roughly at room temperature.

6

	1	2	3	4	5	6	7	8	9	10	11	12
A	x		x									
B	x		x									
C												
D												
E												
F												
G												
H												

- Prepare the **STARTER solution** by adding **2.5 mL** of ultrapure water to one STARTER vial and mix with magnetic stirring bar until dissolution, at room temperature. Avoid direct light. Dispense the STARTER solution into the reservoir for multichannel pipette.
- Add **50 µL** of **STARTER solution** by multichannel pipette into wells under examination, **except for** wells reserved to **Matrix-Blanks**.(**1A**, **1B**, **3A, 3B).**

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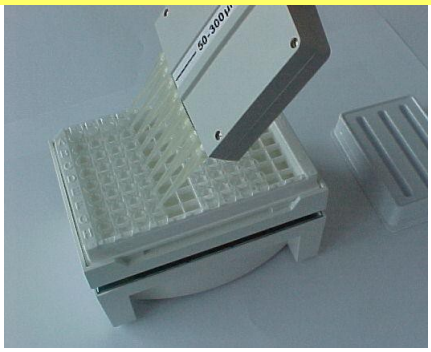

- At 8' from the addition of STARTER solution to column 1, dispense 100 µL of **STOPPER** into every well.
- Let the STOPPER act on the Shaker for 3'.

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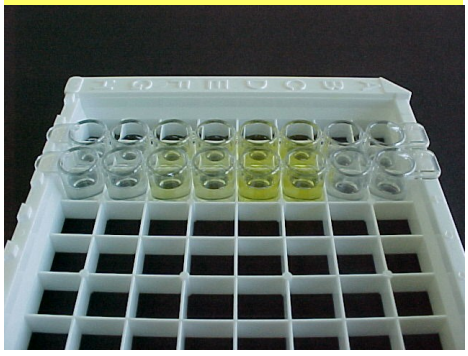
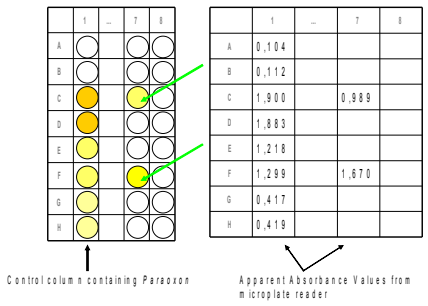


Direct visual evaluation of pesticide titers: Compare the colour in Sample wells with those in Control wells: a pesticide concentration estimate in the extract is obtained by the yellow colour intensity developed in the sample well, compared to the colour in control wells. The yellow colour intensity is inversely proportional to the pestice quantity.

9

EXAMPLE OF RESULTS: pesticide titre in wells 7C and 7F.



Quantitative pesticide titers calculation by an easy elaboration of microplate reader absorbance results.

Product	Ref.	Packaging
MAIA Pesticide MultiTest	79700	1 MAIA microplate 10 MAIA STARTER vials 10 MAIA MEDIUM vials 1 MAIA Salts