The **GFast-Pesticides in food & fruit** is a qualitative screen, colourimetic assay for the detection of organophosphate and carbamate pesticide residues in vegetable and fruits based on their inhibition of the enzyme cholinesterase (ChE). If pesticides from the organophosphate and carbamate groups are present, color formation will be reduced.

Detection limit for ability to inhibit the enzyme is 15% which means that slight poisoning indicates unsafe. Accuracy and specificity of procedure are 85 and 81%, respectively (false positive is 15%, false negative is 0%)

Test Kit Component

Materials

1. Plastic bottle (extract bottle)	10 bottles
2. Glass test tube	10 tubes
3. Plastic test tube	11 tubes
4. Plastic dropper (3 cc.)	3 pieces
5. Small plastic dropper	1 pieces
6. Gloves 2 pairs	1 piece

Solutions

1. Extract solution	1 bottle
2. Distilled water	1 bottle
3. Solution 1	1 bottle
4. Solution 2	1 bottle
5. Solution 3	1 bottle

Number of Sample per kit:

10 Samples/ Kit

Assay Procedure

1. Chop analysed vegetable or fruits and put into extract bottle about level 3 of the bottle.

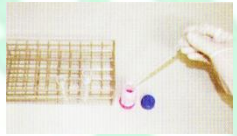
2. Add 6 cc. extract solution, tightly cap and vigorously shake or vortex for 2 minutes.

3. Open the cap with caution and pour the extract solvent to glass test tube.

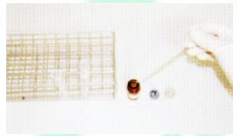
4. Evaporate the extract solution by putting into a cup containing warm water.

5. During evaporation, prepare solution 1 by adding 1 cc. distilled water and solution 3 adding 1.5cc. distilled water. Gentle stir.

6. Stir the dipped tube until remains approximately 1 drop, then roll to left and right for dryness.

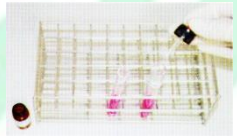


7. Add 3 cc. solution 2 into the tube in step 6 and the control tube.



8. Add 2 drops solution 1 into the analysed and control tube in step 7, mix thoroughly and incubate for 5 minutes.

9. Transfer the solution from the analysis tube to plastic tube.



10. Add 2 drops solution 3 into the analysis and control tube. At the exactly 5 minutes, evaluate color in the analysis tube compare with the control tube.

Interpretation of results

Evaluate the developed color of sample tube compare to negative control tube.

Dark orange as control tube	**Safe**
Orange mix with Pink	**Unsafe (15% inhibition)**
Light Pink	**Strongly unsafe**

Result Pictures

Quality Control

The negative control must be included in each run and must use the same solutions used with the unknown samples. If the negative control fails to result observable dark orange colour, the test is invalid and should be repeated.

Procedure after the Test Finished

- Local and federal regulations for proper disposal of all solutions and test tubes by soaking in 1:10 dilution of Dettol or Clorox for at least 30 minutes.
- Wash the glass test tube with non-ionic Surfactants, follow by water for reuse.

Precautions

- All solutions are chemicals. If they contact your skin or any parts of body, wash out immediately with plenty of clean water follow by surfactant. For solution 2 may be infected, rub or clean with 70% alcohol or disinfectant.
- Put test kit away from children reach.
- Do not mix components from different kit lots and do not use any solution beyond their stated shelf-life. Care should also be taken to keep all bottles tightly capped.

Confirmation Test

The GFast-Pesticides in food & fruit provides screening results. Positive results should be confirmed by standard method at Bureau of Quality and Safety of Food, Department of medical Sciences.

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GFast-Pesticides in food & fruit

(Organophosphate and Carbamate groups Reagent)