

EVALUATION OF FOOD SAFETY AND SUSTAINABILITY IN THE MACARONESIAN REGION: A GREEN MULTIRESIDUE METHOD FOR PESTICIDE ANALYSIS IN ANIMAL-DERIVED MATRICES

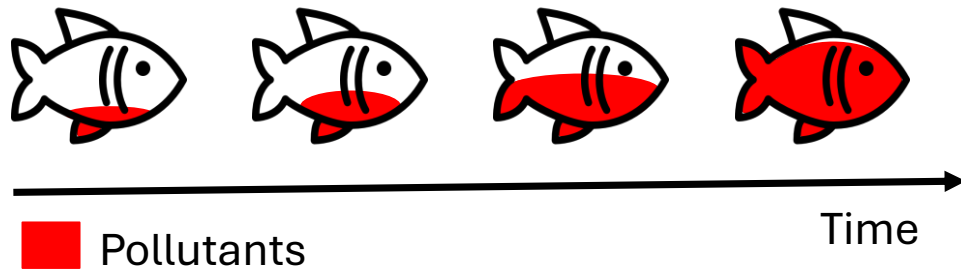
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Antonio V. Herrera Herrera, Miguel Ángel Rodríguez Delgado

Área de Química Analítica. Departamento de Química.

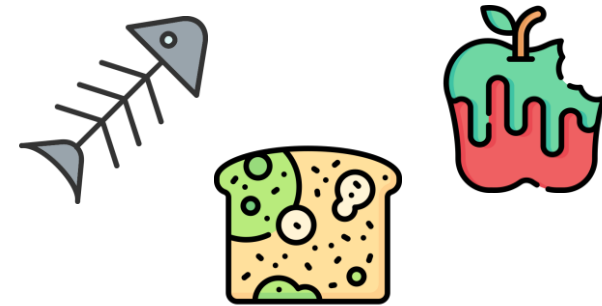
Grupo de Análisis Químico Aplicado a la Industria, Medioambiente y Productos Agroalimentarios

Universidad de La Laguna





Bioaccumulation



Unsafety food products

Analytical methods
to determine
pollutants



Offer quality food

To develop a green approach for the extraction and determination of pesticides in animal-derived food

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PESTICIDES**

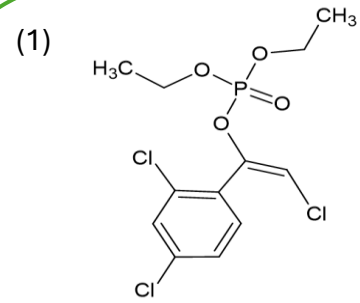
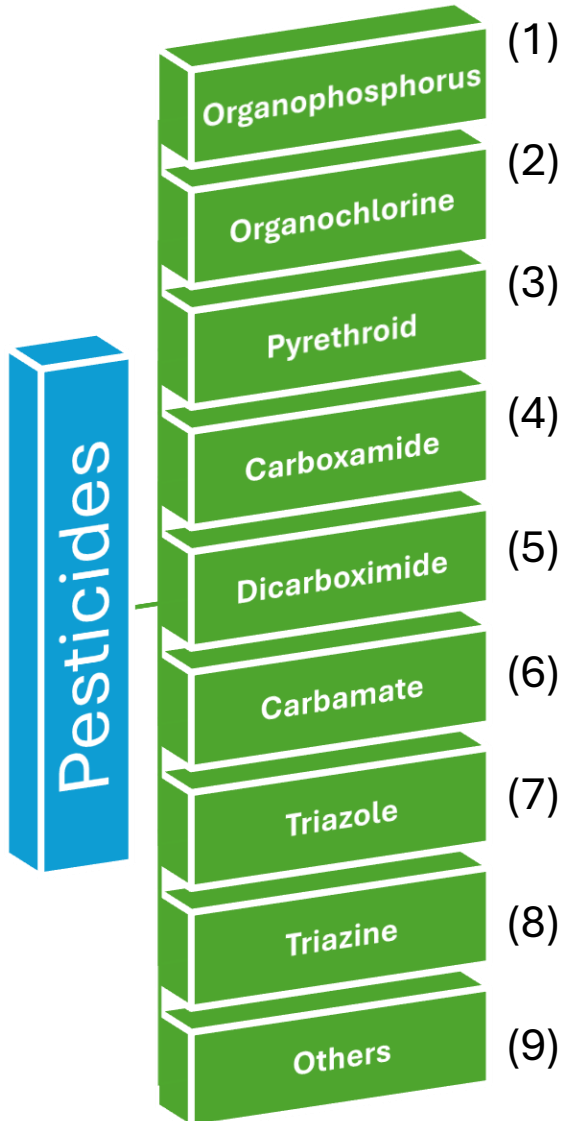


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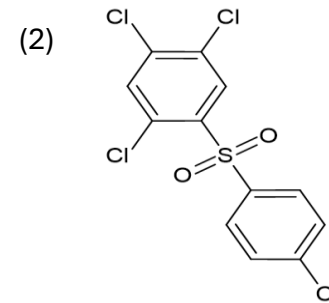
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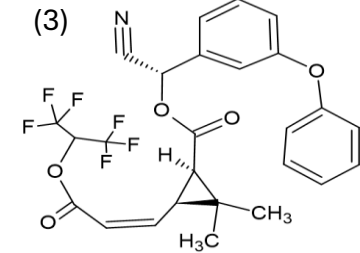
GC-MS/MS



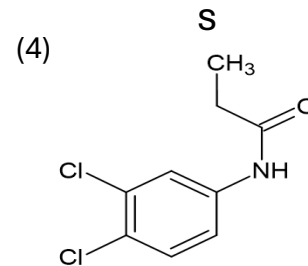
Chlorphenvinpho



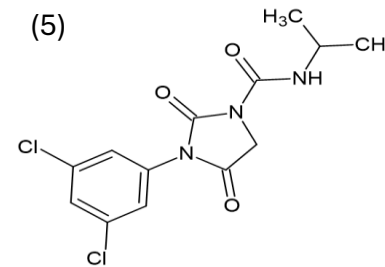
Tetradifon



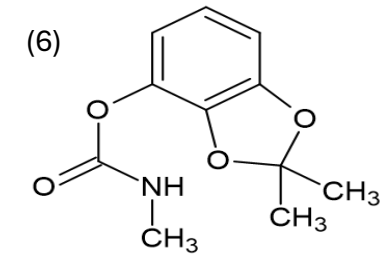
Acrinathrin



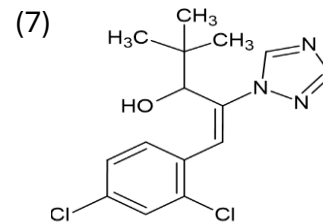
Propanil



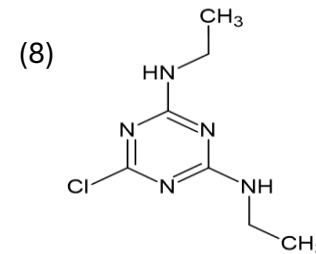
Iprodione



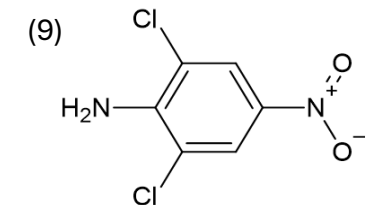
Bendiocarb



Diniconazole



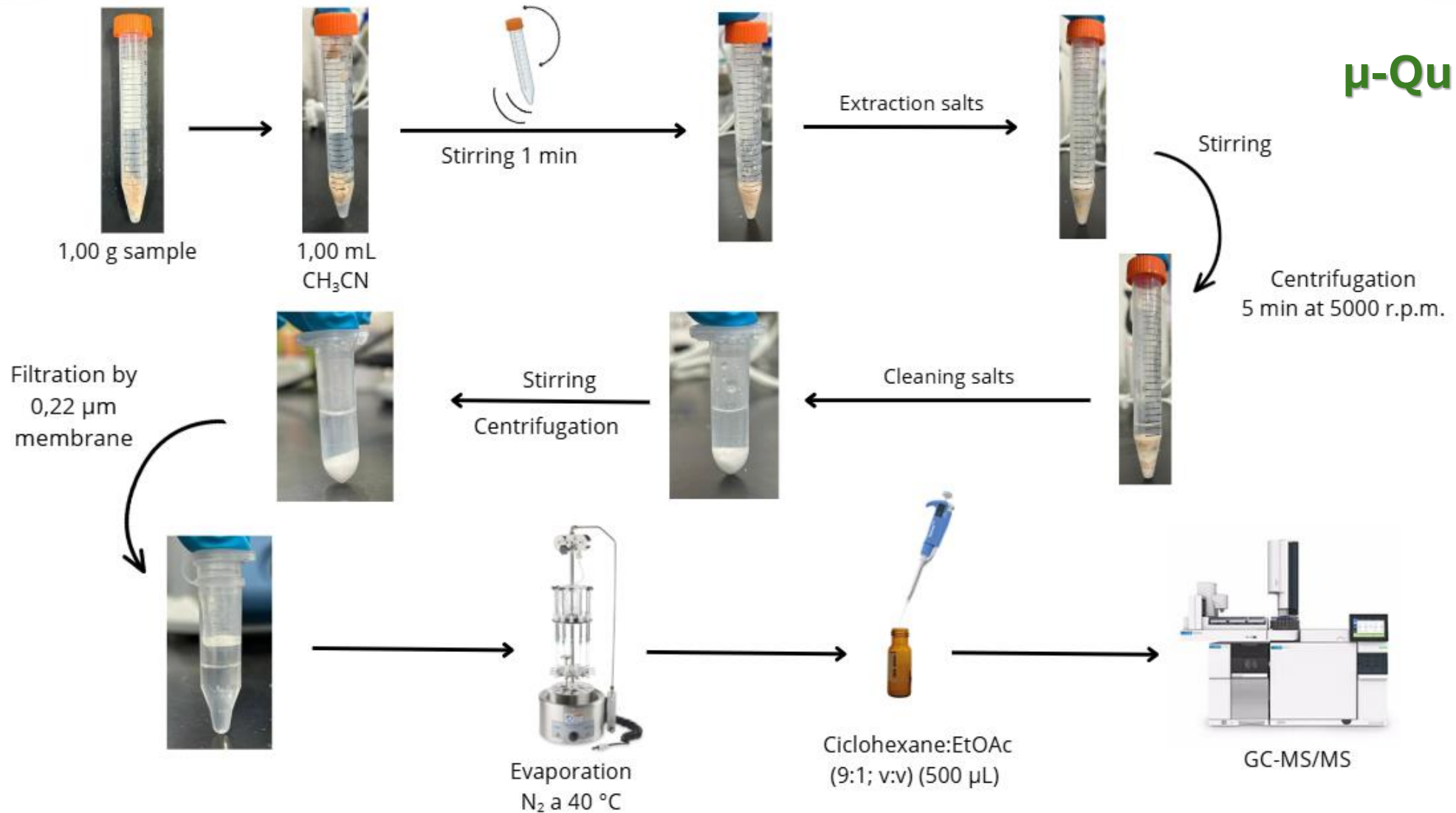
Simazine



Dichloran

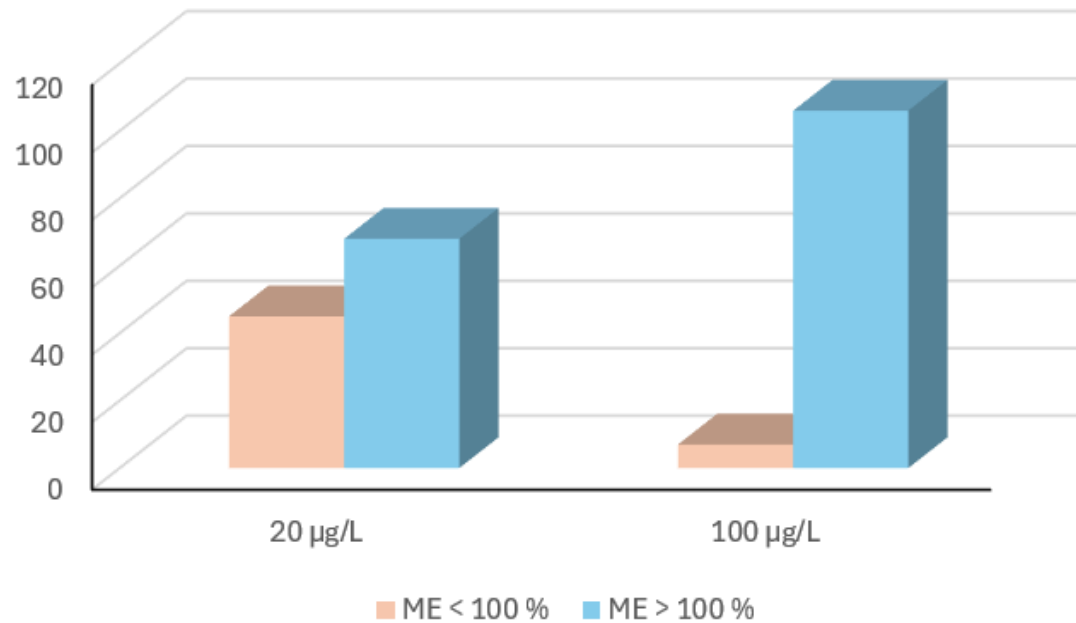
Analytical procedure

μ-QuEChERS



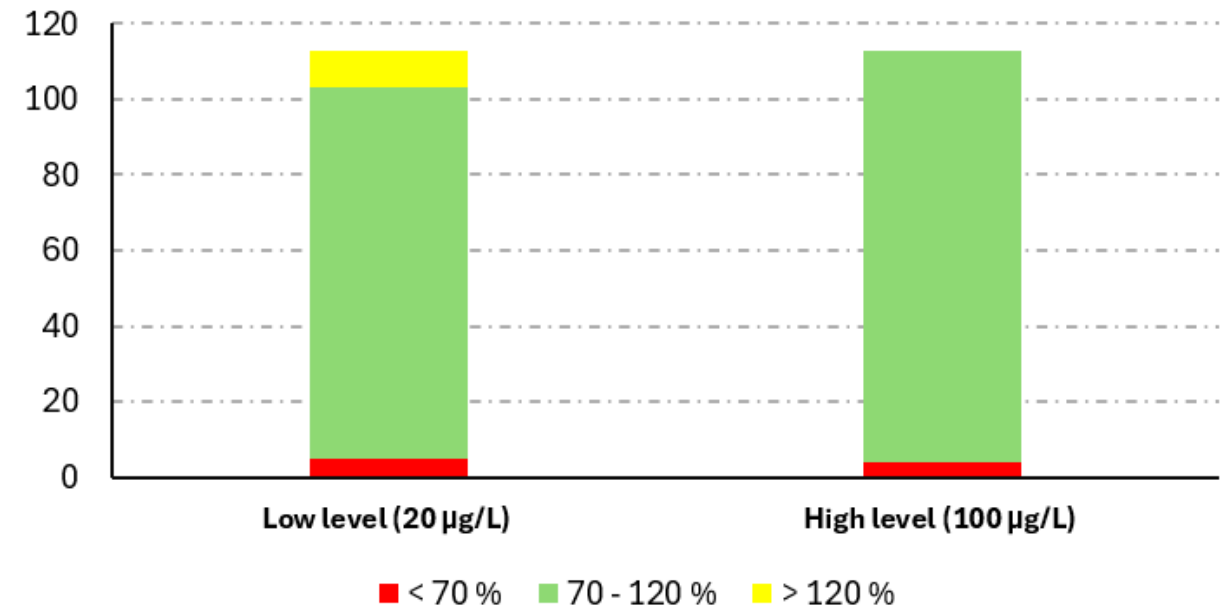
FISH

Matrix Effect
Fish



Matuszewski et al. 2003

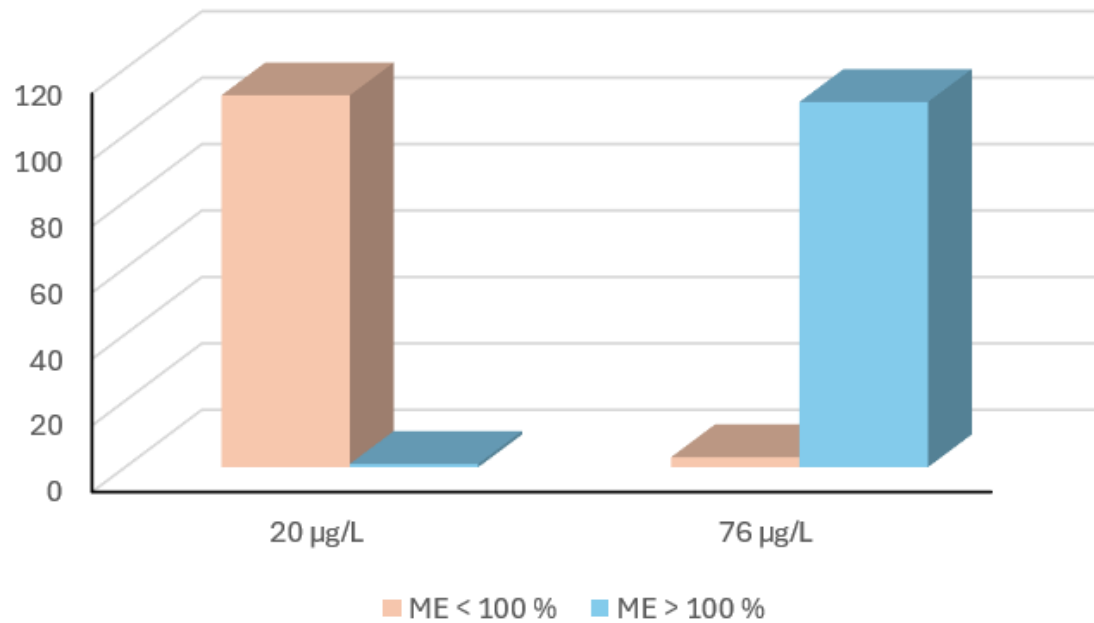
Recovery study
Fish



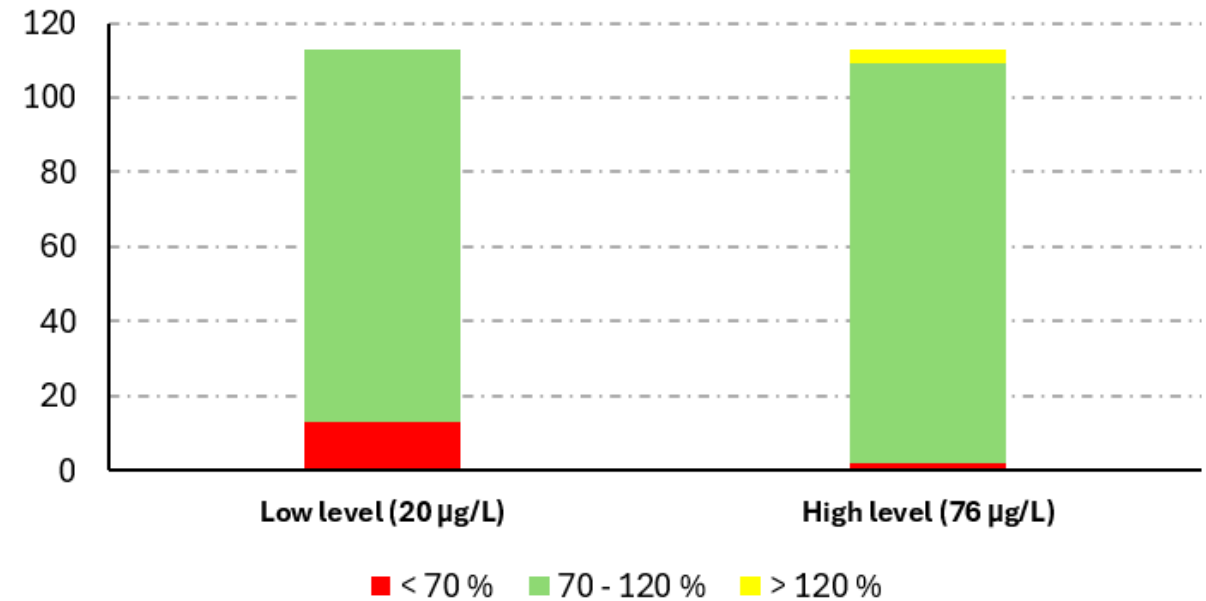
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MEAT

Matrix Effect
Meat



Recovery study
Meat

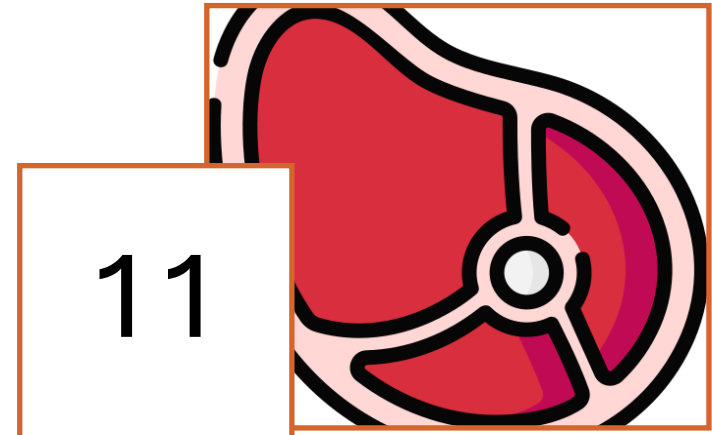
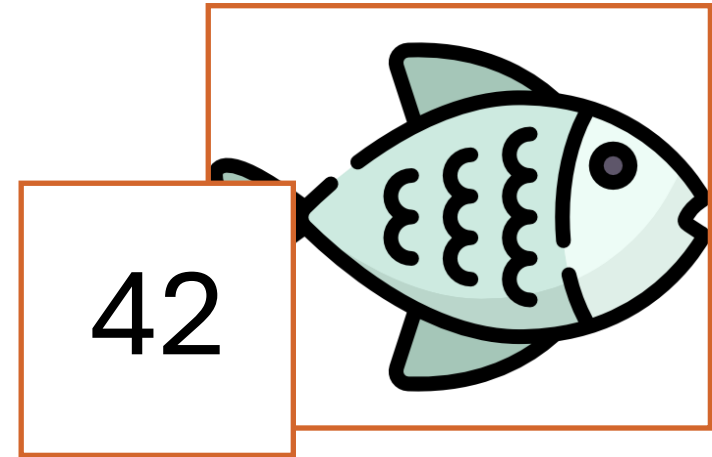
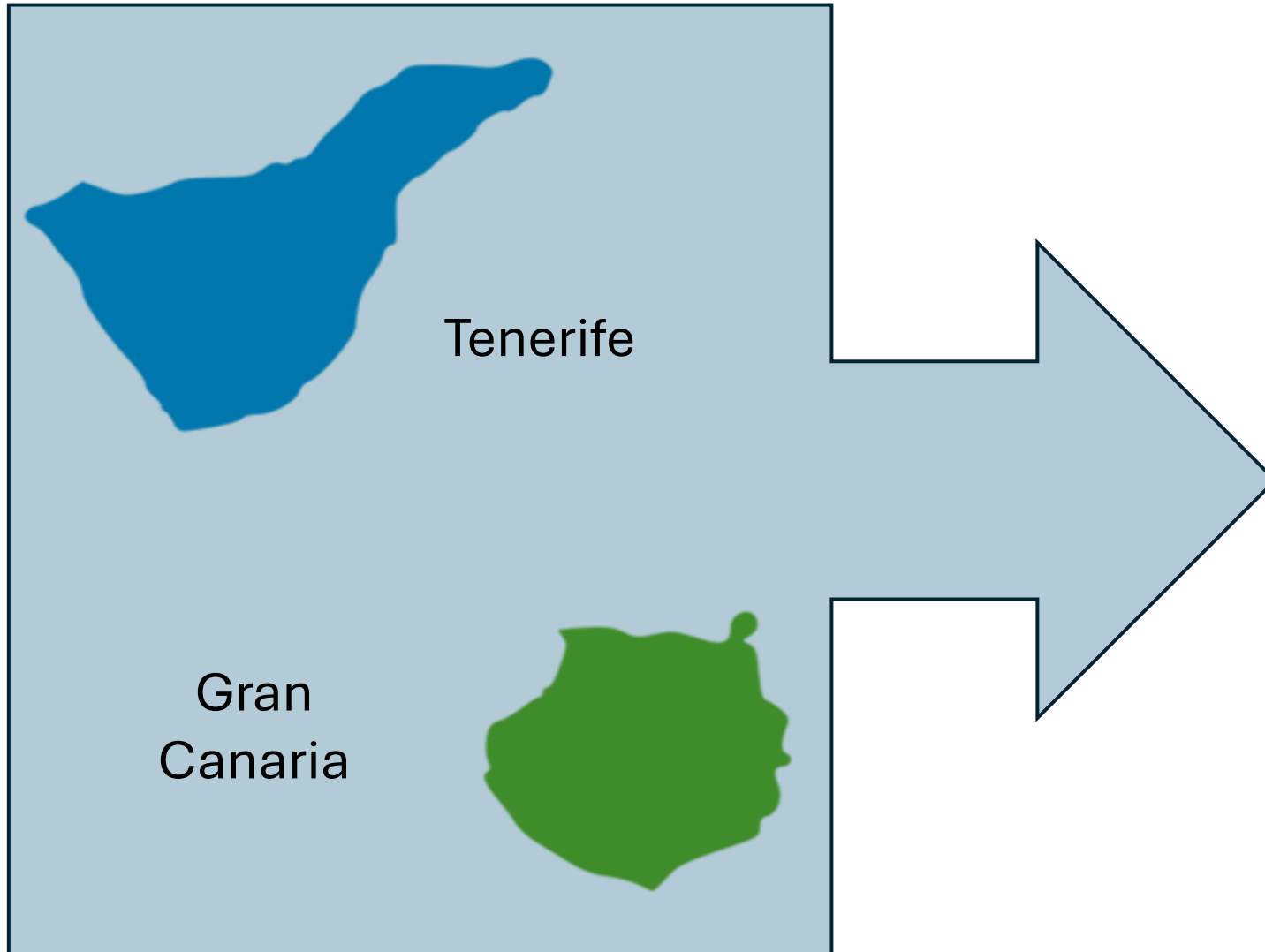


Calibration and Sensitivity

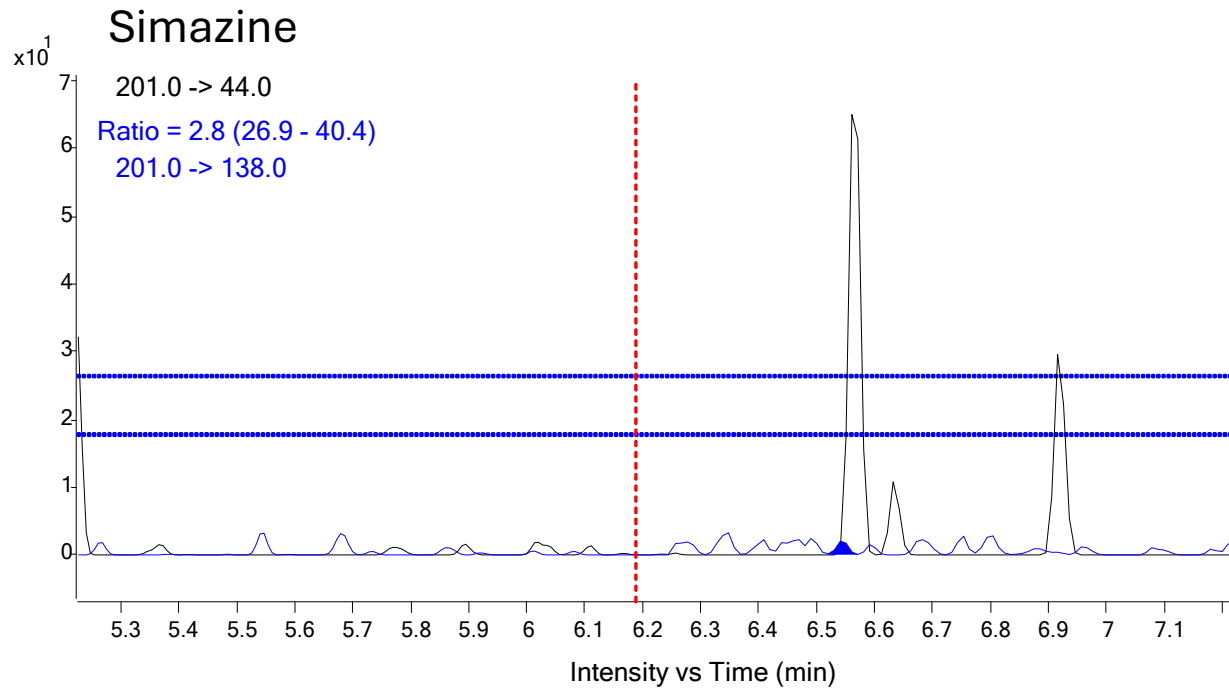
Name	Clasificación
Dichloran	Others
Acrinathrin	Pyrethroid
Tetradifon	Organochlorine
Propanil	Carboxamide
Chlorphenvinphos	Organophosphorus
Diniconazole	Triazole
Iprodione	Dicarboximide
Bendiocarb	Carbamate
Simazine	Triazine

FISH	
R ²	LOQ (µg/kg)
0.999	4.56
0.996	3.56
0.998	4.34
0.996	4.98
0.997	3.94
0.996	4.44
0.998	3.88
0.998	3.74
0.999	4.86

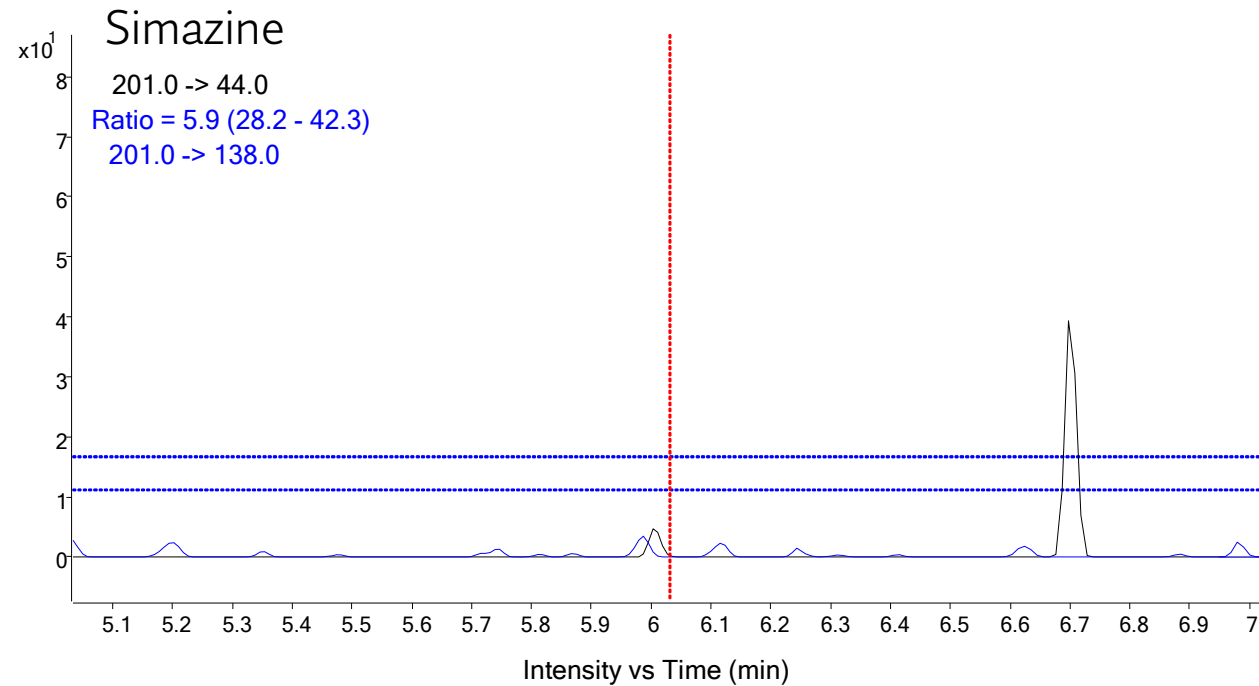
MEAT	
R ²	LOQ (µg/kg)
0.997	6.20
0.998	8.50
0.997	8.32
0.998	5.98
0.997	7.35
0.999	8.51
0.997	9.10
0.997	6.67
0.996	6.42



Fish sample



Meat sample



Conclusions and future work

The procedure was validated for both matrixes demonstrating excellent sensitivity and accuracy

None of the fish and meat samples showed any of the target pesticides

There will be more samples from other regions such as Cape Verde, Azores, Madeira and Ivory Coast

Thank you for your kind attention



The present work forms part of the ALSEMAC project (1/MAC/2/2.6/0116), “Alimentos Seguros, Saludables y Sostenibles, producidos en un marco de economía circular eficiente, que garantice la soberanía alimentaria, para un Consumo Responsable en la Macaronesia y en el área de Cooperación MAC 2021-2027”. Funding: Interreg MAC 2021–2027 Territorial Cooperation Programme, co-financed by the European Union.