

# NEW METHOD FOR RAPID, SIMPLE AND EFFICIENT DETECTION OF NITRITES

**P** PATENTED TECHNOLOGY



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## ABSTRACT

The **Institute for Organic Synthesis (ISO)** has developed a **new method for the formation of indolizines**, based on the use of the Eschenmoser salt, the products of which allow the rapid, simple and efficient detection of nitrites in water or food.

This invention solves the disadvantages of the methods known so far, since they do not require highly-reactive and/or highly-toxic substances. It can be applied both in solution and on cotton swabs.

The group is looking for companies interested in acquiring this technology for commercial exploitation.

## TECHNOLOGY ADVANTAGES AND INNOVATIVE ASPECTS

### TECHNOLOGY ADVANTAGES

The main advantages of this technology are the following ones:

- The colour change in the procedure for detecting nitrites is immediate, except in the case of very low concentrations.
- The test can be applied in solution or on cotton swabs at a wider range of concentrations.
- No highly reactive or toxic substances are required.
- It only involves an organic substance at very low concentration 10<sup>-4</sup> M.
- It does not require any exhaustive control of the process.
- No apparent generation of residues and/or harmful products.
- The high range of concentrations.
- Selectivity.

### INNOVATIVE ASPECTS OF TECHNOLOGY

The present invention describes a novel method of formylation which uses, for the first time, the Eschenmoser salt (solid substance) as a formylation agent, in the presence of sodium bicarbonate at room temperature and which, applied to indolizines, makes it possible to obtain the corresponding carbaldehydes (7-formylindolizines) in a regioselective manner. This is the first formylation reaction at the position 7 of the indolizine ring.

Furthermore, these carbaldehydes have been shown to be selective agents for the rapid, simple and efficient detection of nitrites at low concentrations.

## MARKET APPLICATIONS

The main sectors of application are **pollution and environmental impact** and the **agro-food** sector, since this invention may represent a great progress in the detection of nitrites in water and food.

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COLLABORATION SOUGHT

The research group is looking for companies interested in acquiring this technology for **commercial exploitation** through patent licensing agreements.

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