

# NEW FAMILY OF DYES

**P** PATENTED TECHNOLOGY

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## ABSTRACT

The Institute of Organic Synthesis at the University of Alicante has developed an innovative method for synthesizing a new family of indolizines with dye properties. A prominent feature of this method is that the molecules of interest are obtained in one step from commercially available materials under mild reaction conditions (room temperature and atmospheric pressure). The compounds obtained are solvatochromic, that is, their colors vary according to the solvent used.

The technology is environmentally friendly and the method is rapid and selective with yields higher than 70%. These novel compounds can be customized for any industry application with potential interest. The group is looking for companies interested in acquiring this technology for commercial exploitation through licensing agreements of the patent, manufacturing agreements or research agreements to develop new applications.

## ADVANTAGES AND INNOVATIVE ASPECTS

The main advantages of this technology regarding current methods of synthesis are listed below:

- The indolizine dyes are obtained in one step from commercially available materials, unlike current procedures, which involve multiple steps. This is an advantage in the production process, as it reduces costs, increases the final yield and less waste is generated.
- The procedure is based on a very simple treatment which produces indolizine dyes in yields higher than 70%.
- The present invention does not require the use of inert atmosphere, dry solvents or physical activation (heat or radiation) to obtain the final product.
- Unlike other methodologies for preparing indolizine dyes (requiring temperatures around 100°C), this process is carried out at room temperature and atmospheric pressure, which simplifies the method and decreases production costs.
- This is an environmentally friendly technology because it does not use solvents such as dioxane, pyridine, chloroform or benzene, which are used in other methods and are characterized by their high toxicity and demonstrated carcinogenicity.
- The selectivity of the reaction is very high. The indolizine dye is obtained with absolute control, obtaining a single isomer of the ten possible.

## MARKET APPLICATIONS

Indolizine structures obtained through this method are new and their interesting properties can make improvements to current applications based on materials containing such compounds.

For example:

- Staining and dyeing materials.
- Recording devices and laser scanning.
- Thermography.
- Photothermography.
- Electrochromic devices.
- Optical filters.
- Photoelectric converters (solar cells), etc.

Or even may allow discovery new applications. It is also possible to introduce in the molecule different functional groups in order to adapt it to the industrial sector of interest to get a specific application: for chemicals and materials (plastic industry, homogeneous injections/extrusions, non-homogeneous injections/extrusions, polymer (plastics) materials), textile (synthetic and natural), leather tanning, paints, cosmetics, scanning related, alternative energy (solar energy and photovoltaic solar), and electronic chemicals.

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#### COLLABORATION SOUGHT

Companies interested in acquiring this technology for commercial exploitation through:

- Patent licensing agreement.
  - Manufacturing agreement
  - Research agreement for:
    - o Developing new applications.
    - o Optimizing the synthetic process for the sector of interest.
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