

PREPARATION AND CHARACTERISATION OF FLUORESCEIN SODIUM OPHTHALMIC STRIPS: HOW TO ACHIEVE A STANDARDISED AMOUNT OF FLUORESCEIN SODIUM?

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BACKGROUND & IMPORTANCE

- Fluorescein sodium ophthalmic strips are sterile paper strips infused with fluorescein sodium dye, used to evaluate corneal abrasions and tear film stability, and to measure intraocular pressure.
- Since fluorescein sodium ophthalmic strips are not commercially available in our market, they must be prepared in the hospital pharmacy unit.
- However, the method of preparation and the quantity of released fluorescein sodium are not yet standardized.

AIM & OBJECTIVES

To standardise the method of preparation of fluorescein sodium ophthalmic strips by comparing the differences in the amount of released fluorescein sodium related to the impregnated surface area.

MATERIALS & METHODS

Preparation of Fluorescein Sodium Solution 10% sterile

Dissolving fluorescein sodium powder in sterile water for injection and sterilizing the solution by autoclaving.

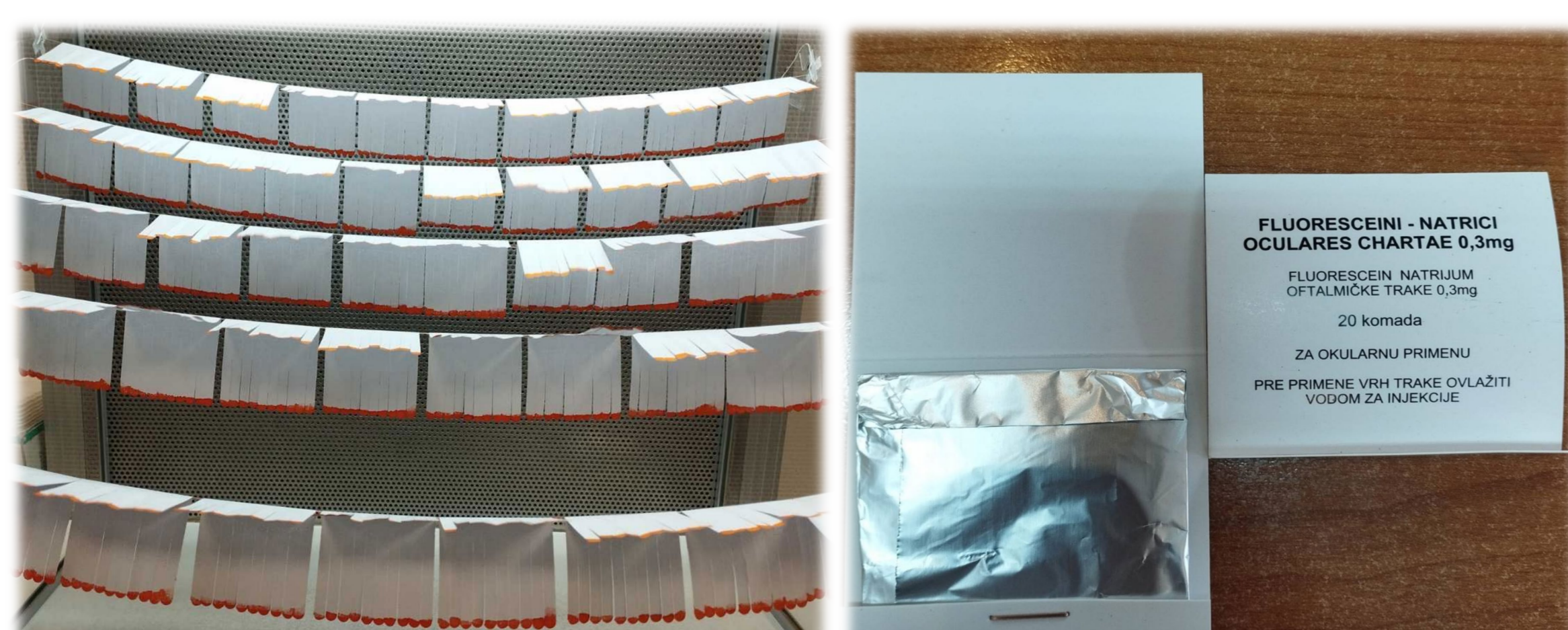
Impregnation of Paper Strips

✂ One edge of each paper strip was dipped into the sterile 10% fluorescein sodium solution

👉 Strips were air-dried for ~15 minutes under a laminar flow hood to maintain sterility

Strips with four distinct fluorescein-impregnated surface areas (15, 25, 35, and 50 mm²) were prepared.

The amount of fluorescein sodium released into aqueous solution was quantified **spectrophotometrically at 492 nm**.



RESULTS

Amount of fluorescein sodium released from strips of different surface areas is presented in Table 1 and Figure 1.

Table 1. Quantitative fluorescein release from strips of different surface areas

Surface area (mm ²)	Amount released (µg)
15	235.6
25	366.3
35	617.3
50	1100.3



Figure 1. Correlation between strip surface area and fluorescein release (%)

Observation: Direct correlation between surface area and fluorescein sodium release.

Regulatory insight: Only the 25 mm² strip meets USP-NF 2025 specifications (100–160% of labeled amount).

CONCLUSION & RELEVANCE

- Adjusting the fluorescein-impregnated surface area allows control over the amount of fluorescein released.
- Optimizing release reduces excess dye use, minimizes waste, and ensures consistent results.
- Findings support more effective use of fluorescein ophthalmic strips, potentially improving diagnostic accuracy and patient outcomes.

