EFFECT OF He-Ne LASER ON HUMAN ERYTHROCYTES INCUBATED WITH HEMATOPORPHYRIN DERIVATIVE AND BONELLIN: COMPARATIVE STUDY

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INTRODUCTION

Bonellin is a green pigment extracted from Bonellia viridis (Echiurida).

This sea worm aroused great interest in biologists for its peculiar behaviour and morphological characteristics. The male is 1-2 mm long; the female consists of a large body of about 8 cm with a proboscis more than 1 m long. The worm lives permanently in the

![Fig. 1 Structural formula of bonellin](image)
dark under sand or rocks on the sea bed: sunlight kills it. The larvae which settle on the female proboscis change into males, while those taken out of sea, differentiate into female subjects, several orders of magnitude bigger.

Baltzer (1931) showed that the aqueous extract of the proboscis masculinized the larvae. Lederer (1939) isolated from the proboscis bonellin whose structure was identified by Pelter et al. (1976), who showed that bonellin is a peculiar chlorin (fig. 1).

In 1979 Agius et al. showed the photodynamic activity of bonellin and, three years later, Cariello et al. demonstrated that this substance and porphyrins act in a similar way. The absorption spectrum of bonellin (fig. 2) has a peak at 630 nm.

In the present study we have compared the irradiative effect of He-Ne laser (\( \lambda = 632.8 \, \text{nm} \)) on human erythrocytes incubated respectively with hematoporphyrin derivative (HpD) and bonellin.

![Fig. 2 Absorption spectrum of Bonellin](image-url)