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# SOME EFFECTS OF CHLOR-LIGNIN E TREATMENT ON VICIA SATIVA, VICIA VILLOSA AND PISUM SATIVUM SPECIES

**ODETTA GRAMA, ION I. BĂRA**

**Key words:** Chlor-lignine, aberrations, *Vicia sativa, Vicia villosa, Pisum sativum*.

**Abstract:** The treatment administered 12 hours with different concentrations of chlor lignines has induced a decrease of MI value and an increase of aberrations frequency.

## INTRODUCTION

The pollution problem is very important and actual. It is necessary to find methods to reduce the effects of dangerous factors on the environment. The wastes waters, resulted in cellulose industry, represent a main cause of pollution. A very serious problem is the formation of organic-chlorurate substances in cellulose industry, under action of agents with chlor on some organic compounds.

## THE INVESTIGATIONS AIM

In this paper we aimed to determine the chlor-lignine action on germination capacity of seeds and on mitosis.

## MATERIALS AND METHODS

The experiments were done with seeds of *Vicia sativa, Vicia villosa* and *Pisum sativum* species. The seeds were obtained from Institute of Seelection in Balţi (Moldavian Republic). The germination was assured in darkness, at room temperature. The seeds were treated with chlor-lignines (0.01%, 0.1%, 0.155, 0.25% and 0.386% concentrations, for 12 hours) obtained from "Someş S.A." – Dej factory. The cells division was observed in roots, stained by Carr method, in squash slides prepared.

## RESULTS AND DISCUSSIONS

From table 1 results that the treatment with chlor-lignines has induced a decrease of seeds germination capacity. In the case of *Pisum sativum* species the seeds germination capacity and the degree of plants survival were very low, in all investigated variants. For instance at 0.01% concentration, from 100 sowed seeds have risen only 4. So we may conclude that the chlor.lignines have inhibitory action on the capacity of germination and contribute to the decrease of plants survival.

| THE SPECIES | The percent of germinated seeds, per variant | | | | | |
|---|---|---|---|---|---|---|
| | Control | 0,01% | 0,1% | 0,15% | 0,25% | 0,386% |
| *Vicia sativa* | 98 | 96 | 95 | 95 | 94 | 82 |
| *Vicia villosa* | 100 | 100 | 100 | 95 | 93 | 90 |
| *Pisum sativum* | 100 | 100 | 97 | 96 | 92 | 84 |

**Table 1. The germination percent of treated seeds (12 hours) with different chlor-lignine concentrations.**

In concordance with registered values, at the studied species, the treatment with chlor-lignines has determined a big decrease of MI (Table 1 and Figure 1). At *V. sativa* species, for instance, MI had values between 10.5%-6.93%. The same situation was registered at *V. villosa*. But, contrary, at *P. sativum* the 0.01% concentration had a stimulatory effect (MI = 8.50%, while at control 6.48%). The smallest MI was registered at the 0.0386% concentration.

The treatment with chlor-lignines on mentionned species has induced an increase of aberrations frequency. At *V.sativa* species, for instance, the highest frequency of aberrants A-T was observed under the treatment with 0.25% and 0.386%.

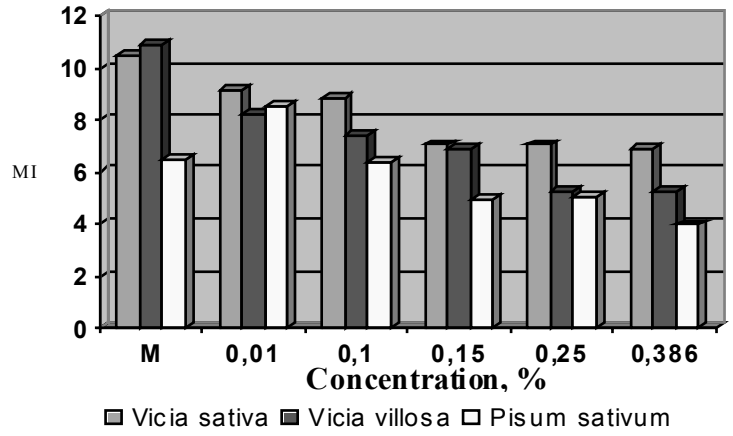


**Figure 1: The MI variability under chlorlignines treatment (for 12 hours) at *Vicia sativa*, *Vicia villosa* and *Pisum sativum*. species**

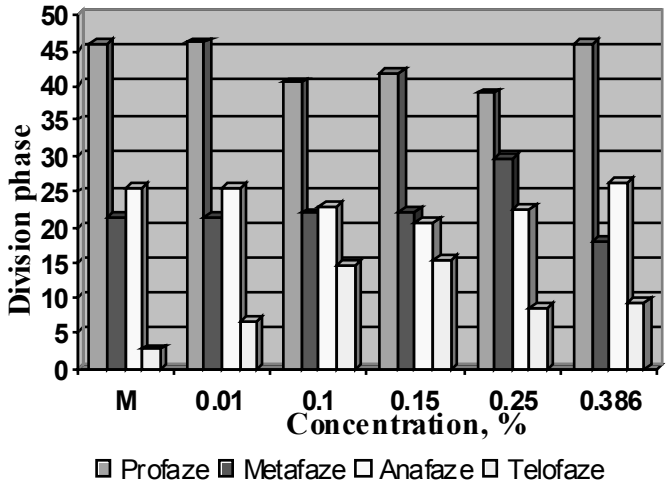


**Figure 2 The frequency of aberrants A-T at *Vicia sativa, Vicia villosa* and *Pisum sativum* species under treatment (for 12 hours) with chlorlignines.**

## CONCLUSIONS

The chlor-lignines have an inhibitory effect on germination process and on plants survival.

MI decreases dependant of chlor-lignines concentration increases. The lowest MI was registered at 0.25% and 0.386% concentrations, for all investigated species.

Chlor-lignines have determined an increase of aberrations frequency at all investigated species.

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