THE VARIATION OF NUCLEIC ACIDS CONTENT AFTER SIMAZIN TREATMENT ON *VICIA SATIVA* L.

ODETTA GRAMA-ȚIGĂNAȘ[1], CSILLA IULIANA BĂRA[1], ION I. BĂRA[1]*

Key words: *Vicia sativa* L., nucleic acids, simazin.

Abstract: Simazin has in certain conditions stimulatory effects on nucleic acids biosynthese. The biosyntese and mitotic division stimulation sugest the possibility to use simazin like growing and germination stimulator.

INTRODUCTION

The simazin action mechanism on vegetal organism, has as target the photosynthesis inhibition, and can have secundar effects. The plants which are tolerant at simazin action, metabolize it in hidroxy-simazin and conjugated amino-acids (Sarpe 1987, 1976).

MATERIAL AND METHODS

The quantitative measurments of nucleic acids were made after Spirin method (1958) readapted for vegetal tissues.

RESULTS AND DISCUSSION

Plants productivity depends of the intensity of methabolic process which takes places on whole vegetation period, being ereditary reglated. Nucleic acids activly participate at different molecular process like those of proteins and clorophile synthesis.

For *Vicia Sativa* L., the 6 hours treatment with simazin induced the increase of total nucleic acids quantity.The most intense stimulation was noticed by 0,1% concentration treatment variant (78,927 mg/g). The increase of nucleic acids quantity was induced also by DNA also by RNA. Descrease of quantity of RNA, DNA and total nucleic acids were noticed for 1% simazin concentration (RNA- 11,163 mg/g; DNA- 45,250 mg/g; total nucleic acids- 56,423 mg/g comparing with RNA 12,808 mg/g; DNA 51,773 mg/g; and 64,581 mg/g for total nucleic acids for controle).

For 12 hours treatment, it could be noticed an increase of total nucleic acids content comparing with controle, the maximal value being reached by 0,1% simazin concentration treatment (69,446 mg/g) which descrease to 53,717 mg/g by 1% simazin concentration. For both, treatment or controle variant, higher quantity values were reached by DNA. For 12 hours treatment time, the total nucleic acids content increase especially due to RNA, and for 6 hours treatment, due both RNA and DNA.

For 24 hours treatment time, the functional activity of hereditary aparatus in *Vicia Sativa* L. embrionary roots (fig.3), excepting the 0,01% treatment variant, subjects to a general rule: the diminution of total nucleic acids quantity concomitantly with the increase of erbicide concentration.The lowest quantity of total nucleic acids (30,277 mg/g) was noticed by 1% treatment variant, comparing with 57,921 mg/g by controle. The descrease of nucleic acids quantity was made by the descrease of DNA quantity, while the RNA quantity increased by 0,01%; 0,1%; 0,25%; and 0,5% treatment variant comparing with control.

For the variants treated with high concentrations (0,75% and 1%), the nucleic acids quantity descrease because of DNA and also RNA. The descrease of DNA quantity and increase of RNA quantity, sugest that at that time, in root tips cells by *Vicia sativa* L, the protein biosinthesys was more intense and the DNA autoreplication weaker.

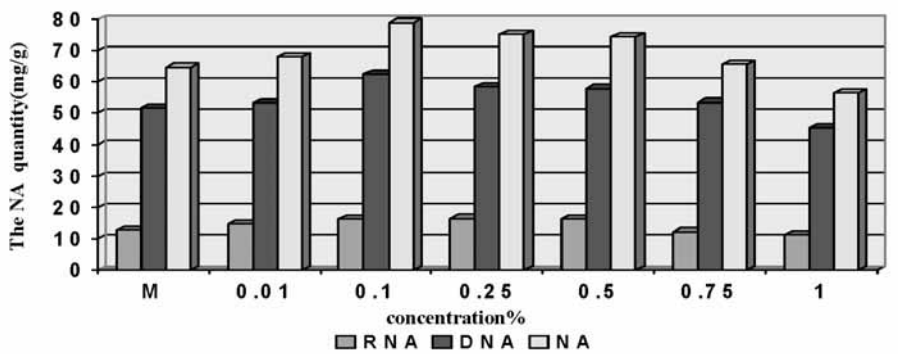

Figure 1. The variability of nucleic acids quantity under treatment of simazin (6 h) at *Vicia sativa* L species.

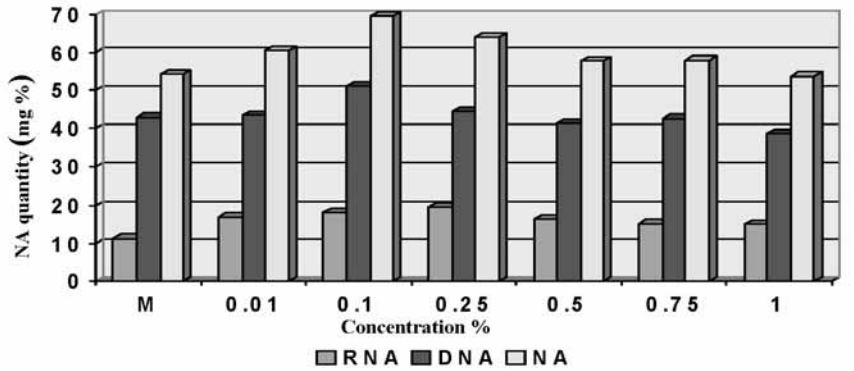

Figure 2. The variability of nucleic acids quantity under treatment of simazin (12 h) at *Vicia sativa* L species.

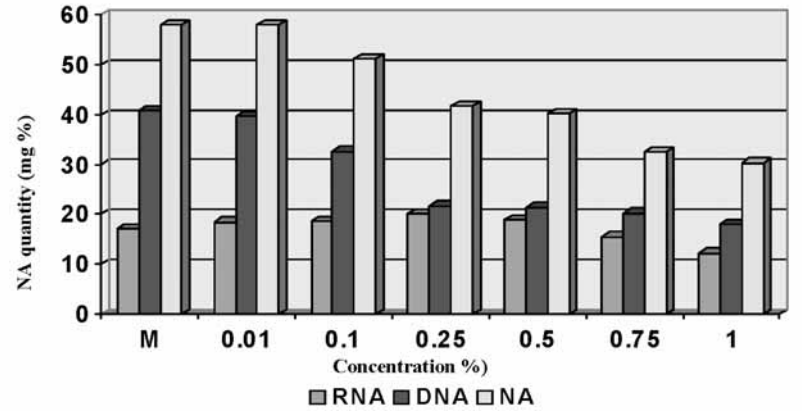

Figure 3. The variability of nucleic acids quantity under treatment of simazin (24 h) at *Vicia sativa* L species.

CONCLUSIONS

By *Vicia sativa* L., simazin has in certain conditions stimulatory effects in nucleic acids biosynthese.

The total nucleic acids quantity increase also because DNA also because RNA.

The maximal stimulation of biosynthese was obtained for 0,1% simazin concentration for 6 hours and 12 hours.

The prelonged treatment, for 24 hours, strongly disturb the hereditary aparatus function.

The biosyntese and mitotic division stimulation sugest the possibility to use simazin like growing and germination stimulator.

Simazin, used in low concentrations do not represent danger for legumes cultures.

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1) “Alexandru Ioan Cuza” University, Faculty of Biology
*) soveja@uaic.ro