

**LABORATORY TRIAL RESULTS REPORT OF THE TOXIC EFFECTS OF THREE DIFFERENT NANO SOLUTIONS PRODUCED BY SONOFARMA İLAÇ KİMYA SANAYİ TİC. LTD. ŞTİ ON ROOT-NOT NEMATODES (Meloidogyne sp.)**

**PURPOSE OF THE TEST**

One part of the trials to investigate the usage possibilities of Sonofar nano solution, which has three different contents, in agriculture is to determine its use in the field of Plant Protection. In this trial, root-knot nematodes, which cause crop losses in agriculture and have limited control possibilities, were discussed, and the effects of these solutions on root-knot nematode (Meloidogyne sp.) were tested and it was investigated whether there were possibilities of combating this pest.

**MATERIALS AND METHODS**

**Materiel**

The 3 liposome solutions used in the test were purchased from “**Sonofarma İlaç Kimya Sağlık Sanayi Tic.Ltd. Şti**” to Bursa Uludağ University Faculty of Agriculture Plant Protection Department Nematology Laboratory. These solutions were stored at +4 C until use. Root-knot nematodes used as target pests were collected as female individuals from the galls on infected plant roots in Bursa Karacabey tomato fields. Since the period that moves freely in the soil and infects the plant is the 2nd instar, 2nd instar larvae were obtained from the collected female individuals and the experiments were carried out on the 2nd instar larvae. However, the root-knot nematode Meloidogyne has not been identified as a species, but is referred to as a genus (Meloidogyne sp.).

Solution 1 content: Sonofar 1

Solution 2 content: Sonofar 2

Solution 3 content: Sonofar 3

## Method

Solutions at the following dosages were used. The following doses were obtained by diluting the solutions in sterile pure water.

Solution No. 1: 50%, 25% and 12.5%,

Solutions No. 2 and 3: 0.1%, 0.2%, 0.3% and 0.4%

Approximately 20 ml of each solution was placed in sterile glass petri dishes with a diameter of 6 cm, and immediately afterwards, approximately 100 ( $\pm 10$ ) 2nd instar nematode larvae were added to each petri dish. Afterwards, homogenization was achieved by shaking the petri dishes in a vortex for 1 minute. Then, the petri dishes were covered and left to incubate at room temperature until the end of the experiment. As a control group, nematodes were kept only in distilled water for the specified periods.

The effectiveness (toxicity) of the solution was determined by counting dead nematodes after 6, 12 and 24 hours of each solution trial. Each experiment was conducted in 3 replicates.

## RESULTS

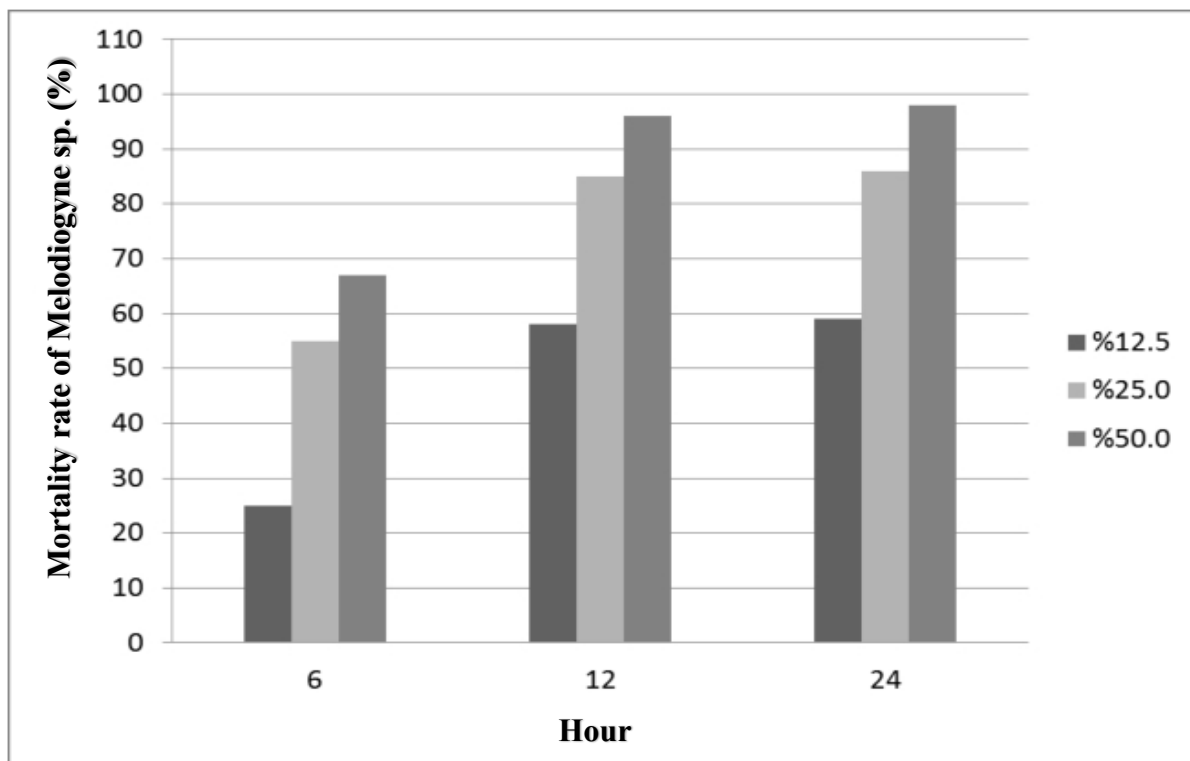


Figure 1. Meloidogyne sp. of solution 1 in 6, 12 and 24 hour periods. toxic effect on it.

Solution 1, that is, the solution containing only "Nano solution", tends to increase its toxic effect on the nematode as the exposure time increases. However, there does not appear to be a difference in effectiveness between 12 hours and 24 hours. While the lowest effect was detected at a rate of 25% after 6 hours and at the lowest dose of 12.5%, it was determined that it was effective on almost all nematodes at a dose of 50% after 12 and 24 hours, that is, it showed a toxic effect. This result shows that solution 1 has a promising effect in the fight against Meloidogyne sp.

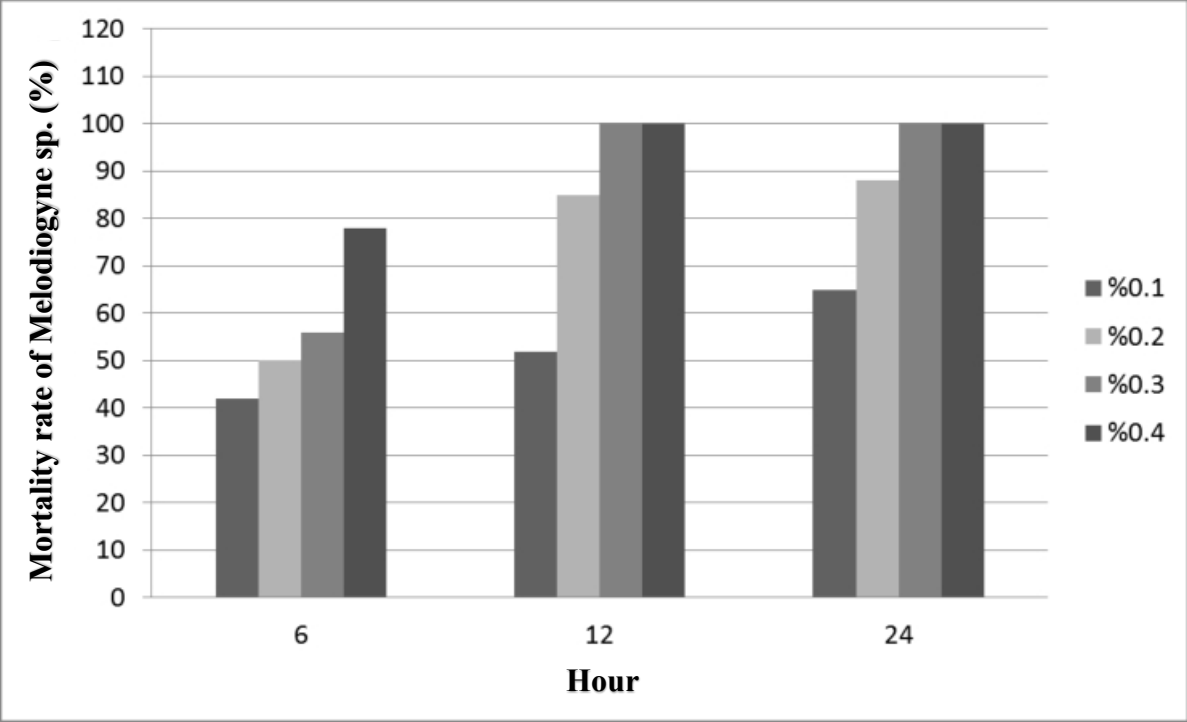


Figure 2. Meloidogyne sp. of Solution 2 in 6, 12 and 24 hour periods. toxic effect on it.

There is a tendency for the toxic effect of solution 2 on nematodes to increase as the exposure time increases. However, there does not appear to be a difference in effectiveness between 12 hours and 24 hours. While the lowest effect was detected at a rate of 35% after 6 hours and at the lowest dose of 0.1%, it was determined that it was effective on almost all nematodes at

doses of 0.3% and 0.4% after 12 and 24 hours, that is, it showed a toxic effect. This result shows that solution 2 has a promising effect in the fight against *Meloidogyne* sp.

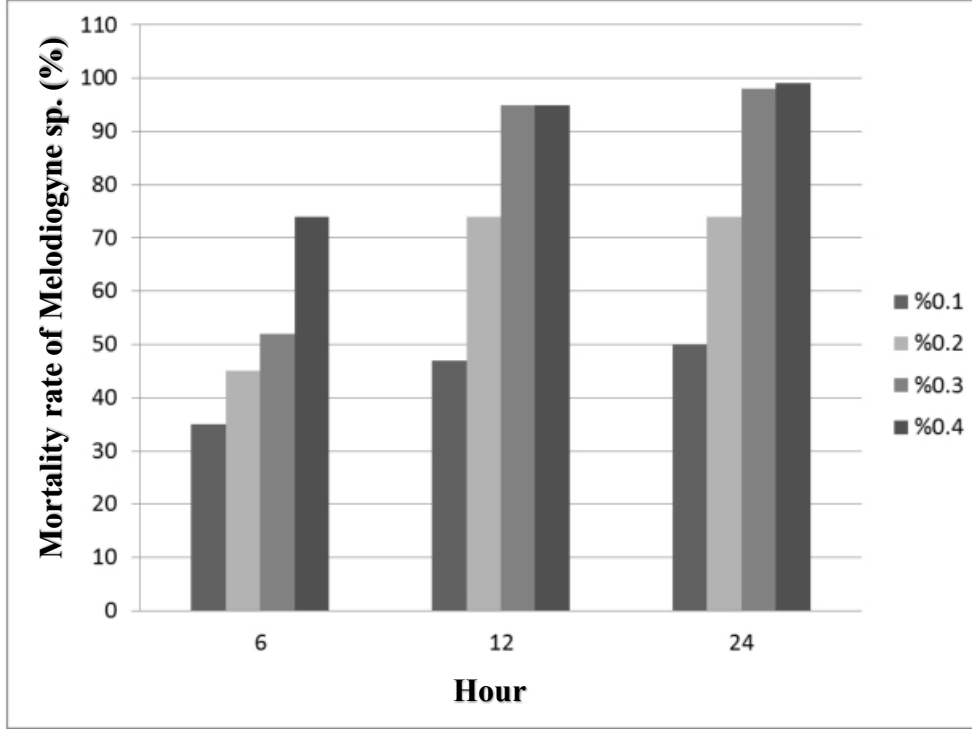


Figure 3. *Meloidogyne* sp. of Solution 3 in 6, 12 and 24 hour periods. toxic effect on it.

There is a tendency for the toxic effect of solution 3 on nematodes to increase as the exposure time increases. However, there is no difference in effectiveness between 12 hours and 24 hours. While the lowest effect was detected at a rate of 42% after 6 hours and at the lowest dose of 0.1%, it was determined that it was effective on all nematodes at doses of 0.3% and 0.4% after 12 and 24 hours, that is, it showed a toxic effect. This result shows that solution 3 has a promising effect in the fight against *Meloidogyne* sp.

**“Sonofarma İlaç Kimya Sanayi Tic. Ltd.”** Three different solutions requested and tested by the Root-Knot Nematode *Meloidogyne* sp. It had a toxic effect on The products that are expected to be marketed under Sonofar brands seem to have a high potential to suppress harmful nematodes in the fight against this nematode, especially in greenhouses.

**This report consists of 5 pages in total.**

**Analyzed / Report Written by:**

**Prof. Dr. I. Alper SUSURLUK**

Bursa Uludağ University, Faculty of Agriculture,

Plant Protection Department

16059 Nilüfer, Bursa

The person who signed above is a faculty member at our faculty.

**Prof. Dr. İlhan TURGUT**

Dean

Bursa Uludağ University, Faculty of Agriculture 16059, Nilufer, Bursa