



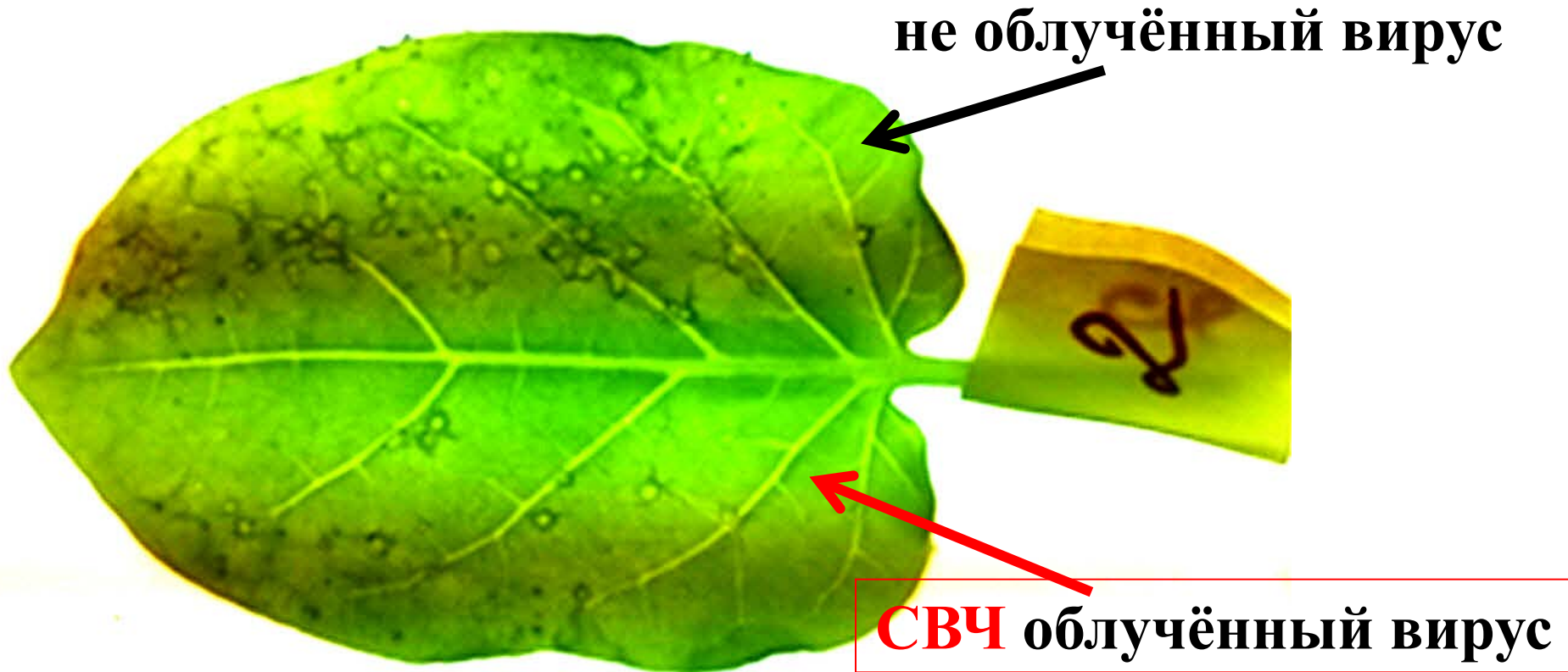
Подавление активности вируса табачной мозаики слабым СВЧ полем (9&12 ГГц, 100 мкВт/см²)

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Samples:

- **Tobacco mosaic virus**

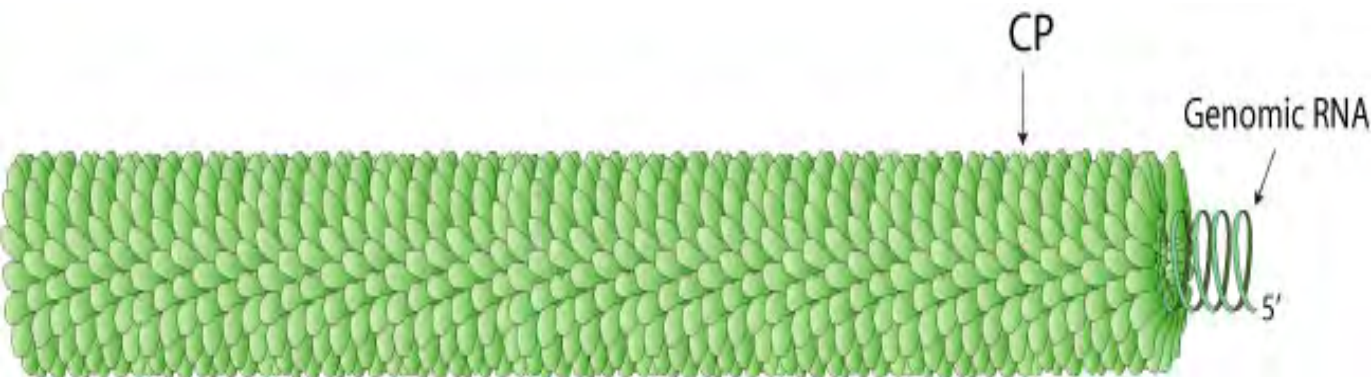
Genus: Tobamovirus *Family: Virgaviridae*

Virions rod-shaped (rigid rods), not enveloped, usually straight and with a distinct central canal. **300 nm long and 18 nm in dia.**



Symmetry helical with pitch of 2.3 nm.

Virions composed of 5 % nucleic and 95 % protein. Genome RNA is single-stranded nucleotides - 6100
Coat protein (CP) - 17 kDa



Preparation of the samples

- **Samples have been prepared in the Biological Department of the Moscow State University.**

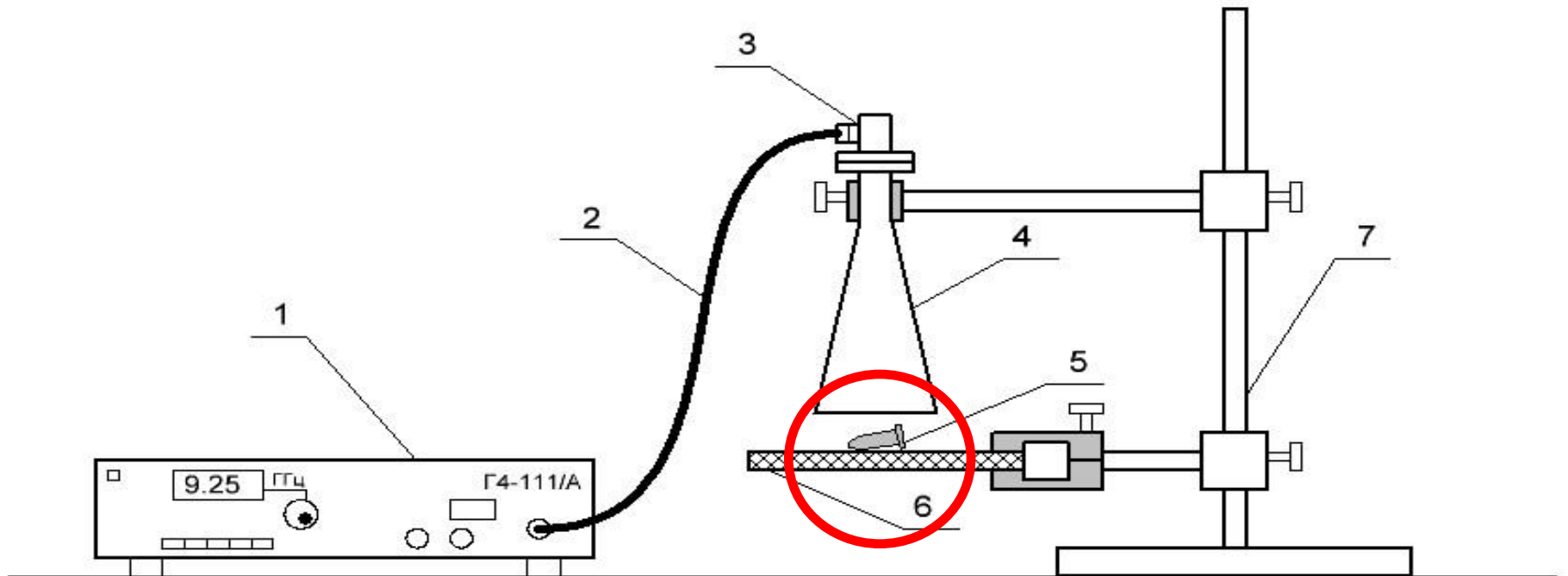
O. Karpova, N. Nikitin, S. Chirkov, E. Trifonova, A. Sheveleva, E. Lazareva and J. Atabekov, Journal of General Virology, 93, 400 (2012).

- **Viruses concentration in the test sample was 50 µg/ml in Tris-HCl pH7.5 buffer. The number of particles in the sample was analyzed by Nanoparticle tracking analysis (NTA). Particles concentration in the sample used was 0.5×10^{12} particles/cm³.**

N. Nikitin, E. Trifonova E, O. Karpova and J. Atabekov, Microscopy and Microanalysis 19, 808 (2013).

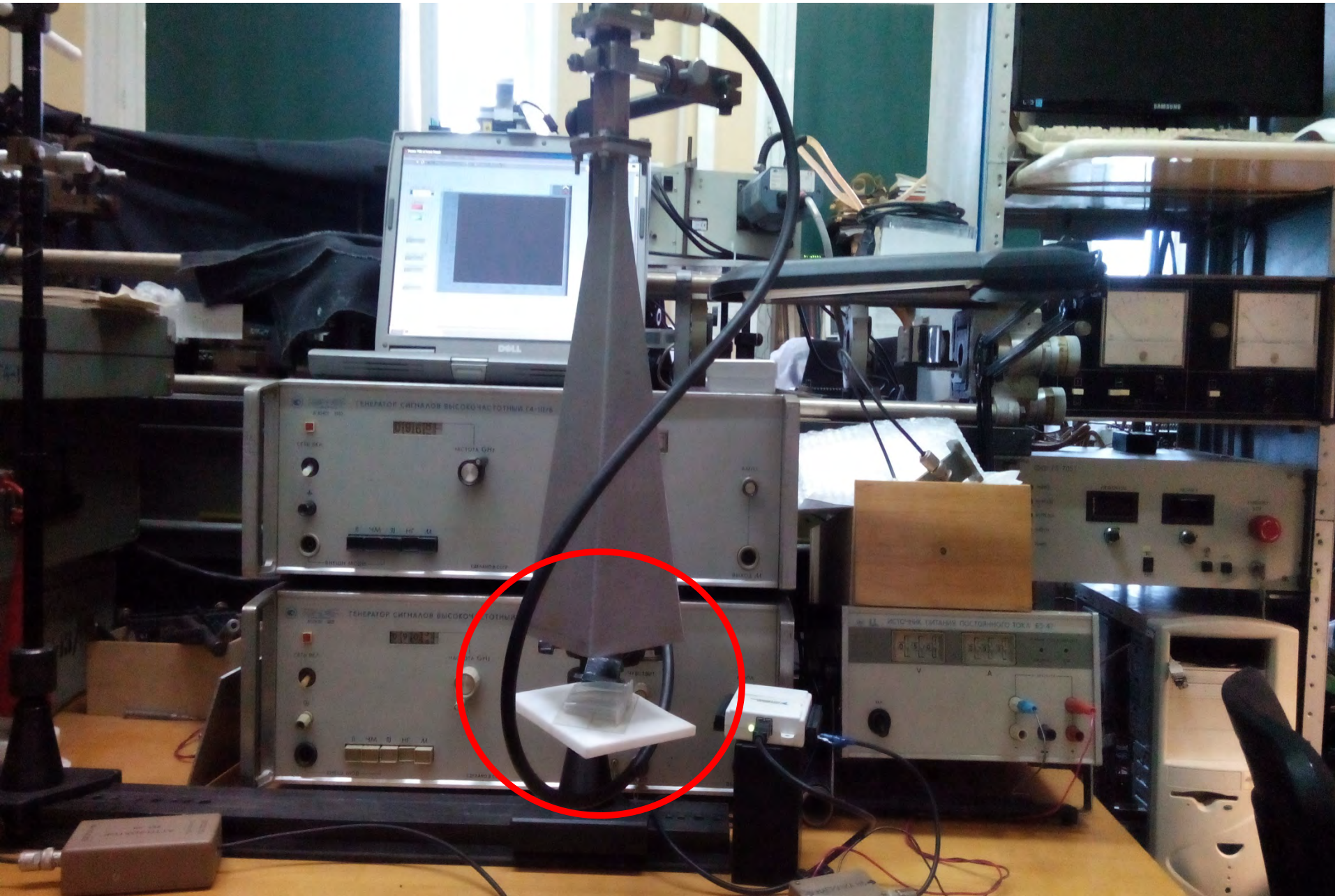
E. Petrova, N. Nikitin, E. Trifonova, A. Protopopova, O. Karpova and J. Atabekov, Biochimie 115, 116 (2015).

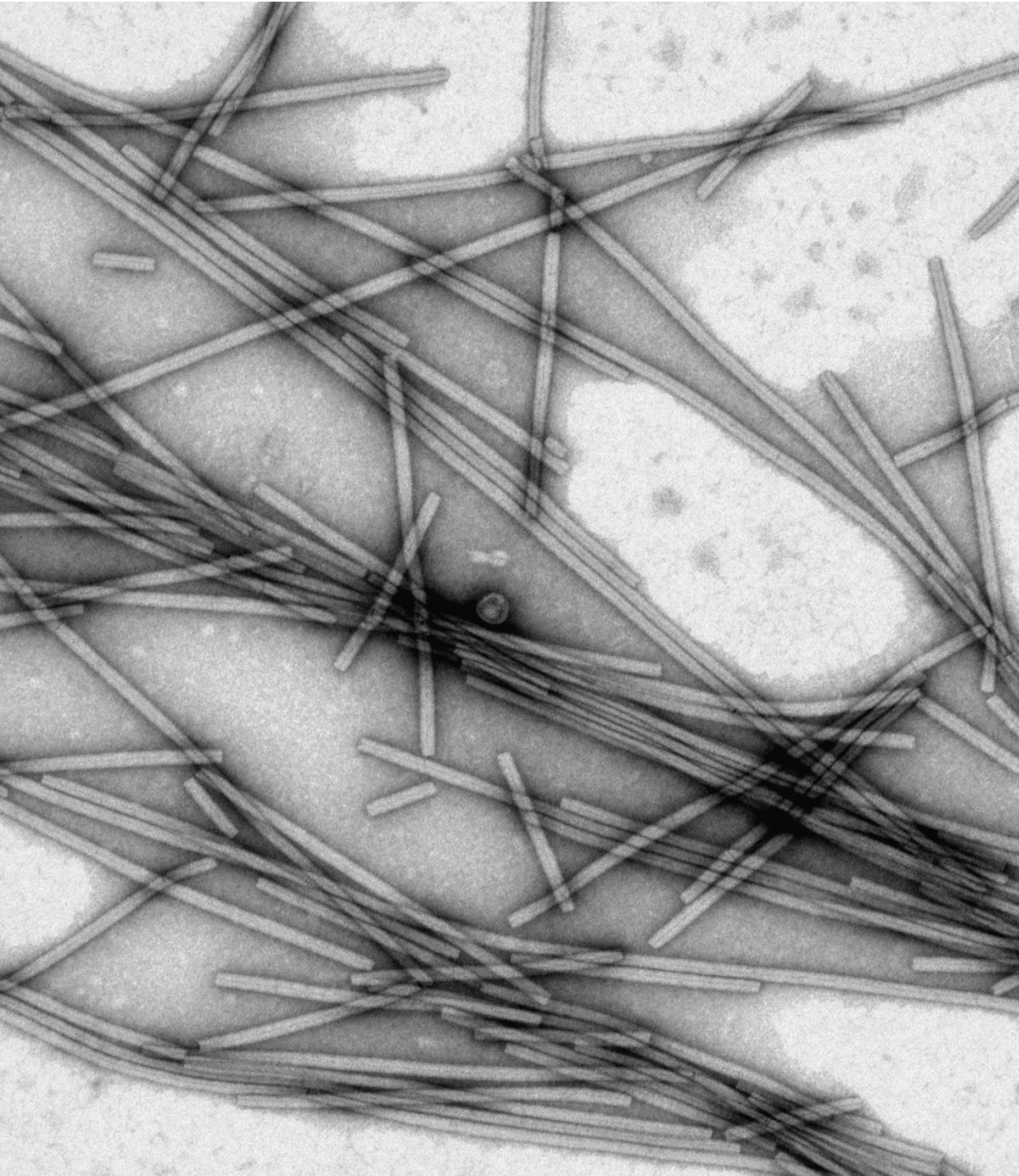
Setup



1. Генератор СВЧ Г4-111А/Б
2. Коаксиальный тракт
3. Переходник коаксиал-прямоугольный волновод
4. Рупорная антенна
5. Кювета с образцом ВТМ
6. Диэлектрический предметный столик
7. Штатив

Setup photo





Virus VTM

by non-irradiated virus



by irradiated virus

**5 days after
irradiation**

**Буфер: 0,01M
трис-НCl pH 7,5**

9 GHz



12 GHz

New series

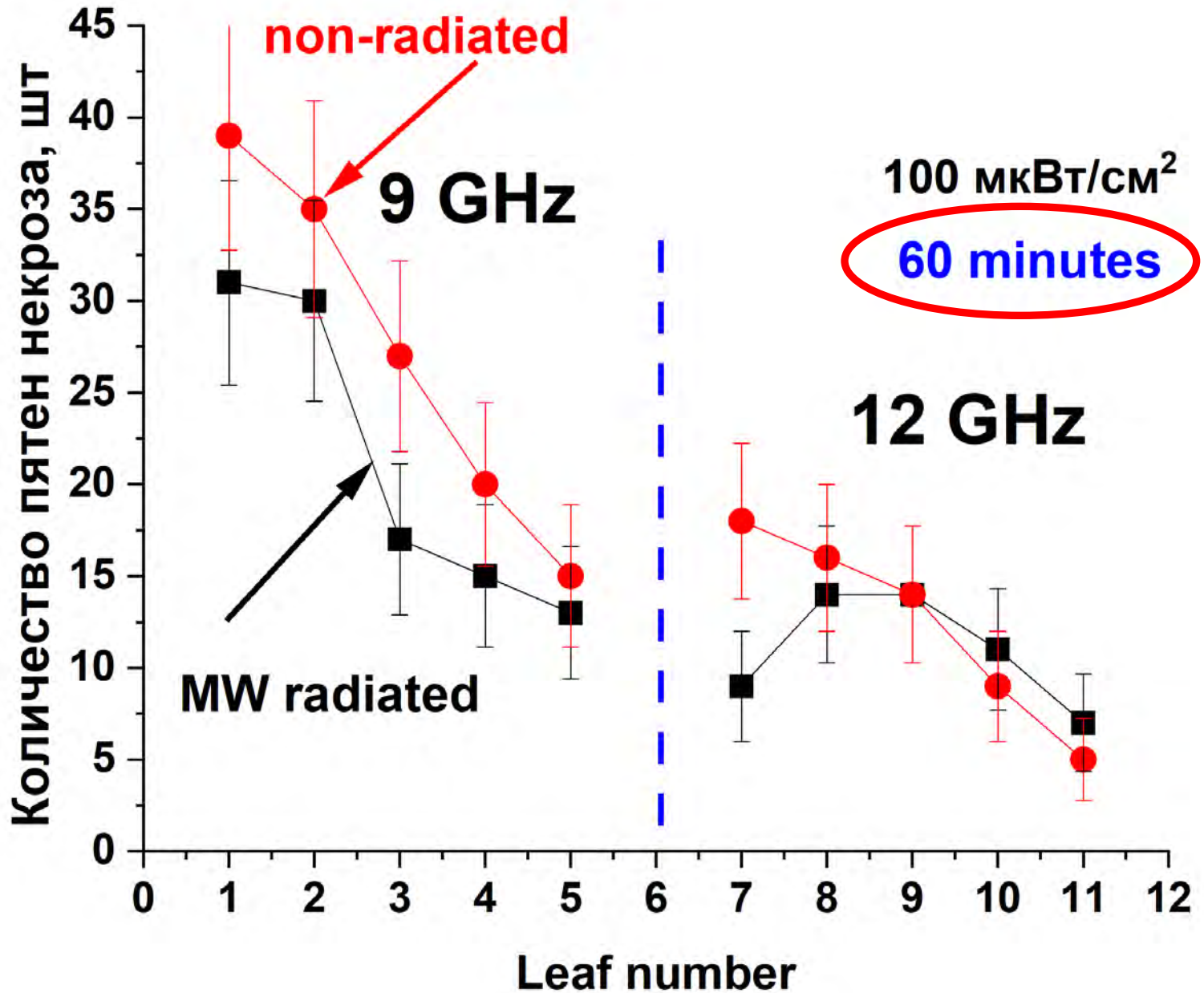
**4 days after
irradiation**



**5 days after
irradiation**



Results



Conclusion

- For the first time to the best of our knowledge,
- we have observed a **notable suppression of TMV activity on tobacco leaves under the extremely low intensity (~ 0.1 mW/cm²) MW (9 GHz) irradiation of TMV aqueous suspension**



THANK YOU

FOR ATTENTION

