

# 3<sup>RD</sup> WORLD BIOTECHNOLOGY CONGRESS

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## Utilization of Tissue culture and laser Capture (LCM) as Acquire innovative biotech strategies for Nematode control in cotton

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Root-knot nematode (*Meloidogyne spp.*) is one of the major pests all over the world, causing yield losses to many economic crops. Application of biotechnology to nematode control tactics influence applied nematology in diverse ways, from nematode identification to the development of resistant cultivars that improve effectiveness and increase the number of management strategies and allow refinement of old technique. The new advanced LCM and tissue culture techniques was used in cotton as economically important crop that heavily infected with the root-knot nematode, *M. incognita* race 3 exhibited histological responses. Microscopic examination of the infected cotton roots detected the second stage juveniles (J2) that penetrate the cotton roots at their tips, migrated in the root cortex and had orientated parallel with the longitudinal root axis towards the vascular region, J4 were observed very close to the stellar region. The young females were noticed within the cortical layers, inserting their anterior parts inside a cluster of giant cells, while mature females were found with their egg-masses embedded within the root tissues, causing a great pressure on the cortical layer, endodermis, pericycle and stellar region. The crushing effect of the exhaustive giant cells and the developing nematodes resulted in malformation and destroying of the vascular tissues and their neighboring cells. Such abnormalities in the anatomical structure of the roots interfere greatly with the function of the root system. Giant Cell morphology and biochemistry shown large number of nucleus also the measurement of adult female body was different in resistant and susceptible varieties of cotton plant. Several genes expressed in giant cells of susceptible plants that didn't expressed in resistant cultivars, Promoters of some of these genes will allow targeting of agents to block giant cell so the nematode will dying from starving.

### Biography

Sanaa Haroon, Molecular Nematologist MS. PhD Florida University, USA. Director of Nematology and Biotechnology lab, Fayoum University, Egypt. the Egyptian Representative in the International Federation of Nematology till now. Published 72 papers. She has Awarded by the Prime Minister in the Global Environmental (Biocontrol), the Excellence prize 2007 in Molecular nematology area and National Promotion for Science from the academy of science. Participated in 18 international conferences. Grant coordinator of 16 projects through her scientific life (USA, Germany, Holland, Sweden, European Union). Member in 9 scientific organizations. Has international link to (Germany, Holland, USA, Sweden, Australia, Italy and South Africa).

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