American Journal of Biomedical Science & Research

www.biomedgrid.com

ISSN: 2642-1747

Opinion

Optimal Nutrients delivery and Possible Inoculation in Pro-Health Tomato Cultivation

Iwona Rybakowska*

Department of Biochemistry and Clinical Physiology, Medical University of Gdansk, Poland

***Corresponding author:** Iwona Rybakowska, Department of Biochemistry and Clinical Physiology, Medical University of Gdansk, Poland.

To Cite This Article: *Iwona Rybakowska. Optimal Nutrients delivery and Possible Inoculation in Pro-Health Tomato Cultivation. 2020 - 8(5). AJBSR.MS.ID.001313.* DOI: 10.34297/AJBSR.2020.08.001313.

Received: April 21, 2020; **Published:** April 30, 2020

Opinion

Tomatoes are one of the more commonly consumed and important for human vegetables [1,2]. The use of organic fertilizers or a strictly limited amount of chemical fertilizers gives us the opportunity to grow a healthy tomato, which tastes better than over-fertilized crops. We must also remember that there are many constrains to tomato production like even whitefly *Bemisia tabaci* [3,4]. Chemical control have been widely used to utilize *Beminisia Tabaci* but their over use has developed resistance to some insecticides which has reduced their efficacy [4,5], while increasing the doses used. The biocontrol by use of microorganisms represents a potentially attractive alternative approach [2,6]. The fluorescent Pseudomonas were the most abundant bacteria in the rhizospheric soil. Bouharoud et al. [2] did the research evaluated the effect of three new Pseudomonas Q172B, Q110B, Q036B isolated from soil of tomatoes.

They showed that the most important mortality rate of 76% was recorded by Q036B. Both Q036B and Q110B caused a significant mortality on *Beminisia tabaci* larvae, with highest 79% mortality effect of Q036B compared to control. Q172B has no mortality effect on *Beminisia tabaci* larvae under laboratory conditions, In glasshouse conditions only Q036B provided high mortality rates of 91% at 168h after treatment. So it seems to me that attention should be paid to Q036B in the future. This positive effect may be explained by the hemolytic activity involving proteins such as lipases, chitinases and hydrolases. So I think that application of the soil microorganism as bio-insecticide is efficient and could reduce the amount of chemicals. I agree with the authors that microbial soil protects tomato plants against insects and reduce uses of pesticides protecting human and environment health [2]. Being a gardener by passion and a scientist by profession, I would also like to draw attention to certain aspects of growing tomatoes in a home garden. In my experience, using the right fertilizer type NPK 09 + 09 + 36at the right dose gives good results. Composition of this fertilizer is: total nitrogen 9%, including nitrate phosphorus pentoxide (P_2O_5) soluble in neutral ammonium citrate solution and water, 36% potassium oxide (K_2O) soluble in water. 3% magnesium oxide (MgO) soluble in water with a mixture of nutrients 0.02%boron (B), 0.25% copper soluble in water and chelated in EDTA, 0.25% iron (Fe) soluble in water and chelated in DTPA, 0.06%manganese (Mn) in water and chelated in EDTA, 0.015% zinc (Zn) solution in water chelated in EDTA. Within a few years of tomato cultivation, I noticed that the 0.5 g/l dose of this fertilizer is good for tomatoes, using a higher dose does not cause better results, leading to even fewer flowers. After putting on the first flowers, the dose can be slightly increased while using it much less often. In this time frequent daily use of the fertilizer in smaller amounts, for example, has worse effects, tomatoes have fewer flowers, and only grow in the stems. Using too large doses of fertilizer is even bad for the plant, moreover, for our health and the cultivation of organic farming also. We know that tomatoes like the sun, but I think that few people know that growing tomatoes in light shading causes a reduction in growth despite the use of fertilizer, the plants are smaller by half, weaker and later create flowers. In my opinion, direct sunlight can play a more important role in plant growth than using high dose of fertilizer.

To sum up, I would like to point out that healthy cultivation for humans can be based on the use of what exists under normal conditions and, can protect us against insects, for example bacteria Pseudomonas present in the soil which use may reduce the amount of chemicals used. As for fertilizers, it is better to create optimal growth conditions for plants, adequate sunlight.

References

1. Ling KS, Tian T, Gurung S, Salari R, Giliard A (2019) First report of tomato brown rugose fruit virus infecting greenhouse tomato in the United States. Plant Dis 103(6): 1439.
2. Qwssaoui R, Amarraque A, Lahmyed H, Ajerrar A, Mayad H, et al. (2020) Inoculation of tomato plants with rhizobacteria suppresses development of whitefly Bemisiatabaci (GENNADIUS) (HEMIPTERA: ALEYRODIDAE): Agro-ecological application. PLOS ONE 15(4): e0231496.
3. Hanafi A, El Fadl A (2002) Integrated production and protection of greenhouse tomato in Morocco. ActaHortic 582: 153-163.
4. Bouharround R, Hanafi A, Serghini MA (2007) Pyrethroids and endosulfan resistance of Bemisiatabaci in the tomato greenhouses of the souss valley of Morocco. ActaHortic 747: 409-413.
5. Bouharroud R, Hanafi A, Brown JK, Serghini MA (2006) Resistance and cross-resistance of Bemisiatabaci to three commonly used insecticides in the tomato greenhouses of the Souss Valley of Morocco. Eur J Sci Res 14(4): 587-594.
6. Wraight SP, Carruthers RI (1999) Production, delivery, and use of mycoinsecticides for control of insect pests on field crops. Biopesticides new Jersey: Humana Press pp. 233-270.