

Cladode features in *Opuntia ficus-indica* resistant cultivars to *Dactylopius coccus* Costa

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Abstract : The multipurpose cactus pear plant with great potential as a source of food and livestock feed faced a threat from *Dactylopius* spp in different countries. Specifically, *D. coccus* is an important pest damaging significant areas in Tigray-Ethiopia. Using pest-resistant cultivars is an important element of an integrated pest management strategy, and studying the mechanisms of resistance is vital. It can be chemical or physical, such as oxalate crystals and other cladode characteristics. Cladode features of six cultivars (three *O. ficus-indica*, two *O. cochenillifera*, and one *O. robusta*) were examined for resistance to *D. coccus* in a completely randomized design (CRD) with three replications. 'Rojo Pelón' (*O. ficus-indica*), 'Robusta' (*O. robusta*), and 'Bioplástico' (*O. cochenillifera*) are resistant cultivars; and 'Atlixco' and 'Chicomostoc' (*O. ficus-indica*) and 'Nopalea' (*O. cochenillifera*) are susceptible. Cultivars showed a significant difference in cladode weight in g, cladode length, cladode width, and cladode thickness in cm, where cladode thickness was higher in 'Rojo Pelón' followed by 'Robusta'. Calcium oxalates number per mm was higher in 'Bioplástico' (20.7+2.08) followed by 'Robusta' (18.9+2.31) and 'Rojo Pelón' (15.9+0.34); and similarly, epidermis thickness found higher in 'Bioplástico' (0.21+0.032) and 'Robusta' (0.19+0.014), but similar with 'Rojo Pelón' (0.18+0.026). However, cuticle thickness didn't show a difference among cultivars. Cladode thickness, calcium oxalates number, and epidermis thickness had positive correlations with resistance. These results demonstrate that calcium oxalates number and epidermis thickness might positively affect *D. coccus* resistance in *O. ficus-indica*. This feeding-barring role and the insect-plant interaction need to be studied.

Keywords : cactus pear, resistance, druses, epidermis thickness

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