XANTHOMONAS AXONOPODIS PV. *CITRI* TYPE IV SECRETION SYSTEM PROTEINS INTERACTION

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Pathogenicity of *Xanthomonas axonopodis* pv *citri* is critically dependent upon secretion systems that mediate the transport and injection of toxic molecules into target cells. Type IV secretion system (TFSS) is used to transport molecules toxic to host cells, proteins, DNA, and protein-DNA complexes, and ATP is used as an energy source to drive such a transport. Herein we report the interaction of two hypothetic proteins from TFSS, XACb0033 and XACb0032. Amplified and cloned, these genes were expressed in *E.coli* BL21(DE3)pLysS strain, and purified by anion exchange and gel filtration chromatography. Insolubility of XACb0032 was solved by co-expression with its potential chaperone. The fluorescence, circular dichroism, STD-NMR, and small angle X-ray scattering (SAXS) data were collected. All spectroscopic data indicate that XACb0033 by binding to XACb0032 has significantly changed its secondary and tertiary structure features. The functional studies of free and complexed XACb0033 indicate the strong binding of complex with ATP and very mild and probably unspecific binding between XACb0033 and ADP. The SAXS results also indicate the size and shape differences between free and complexed XACb0033, while ADP binding to complex of these proteins resulted in evident size changes that might indicate complex breaking upon ADP production in cell.

Acknowledgements: FAPESP and CNPq