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**Five Distinctive Phages from an Egyptian Industrial Strain of
Bacillus thuringiensis subsp. *aegypti***

ABSTRACT

The production of the biocontrol agent, *Bacillus thuringiensis* (Bt) subsp. *aegypti* C18 (BtaC18), suffers huge economic losses due to phage infection. To improve it, an isolation and characterization of the causative agent are necessary, using gradient centrifugation, electron microscopy and protein analysis. Five morphologically distinctive phages were isolated from this strain belonged to the order Caudovirales. Moreover, they been classified: Tailed group (TP3-01, TP3-02, TP3-03 and TP3-05) and pseudotailed group (TP3-04) and fell into three families: Siphoviridae, Tectiviridae and Podoviridae. TP3-01 phage showed hexagonal head and slight long, non-contractile, relatively straight tail. TP3-02 has an isometric head with a long non-contractile, flexible tail while the morphologically similar TP3-03 has a slightly longer head and shorter tail. TP3-04 virus profile showed a rigid polyhedral protein capsid surrounded with a thick, flexible lipoprotein vesicle which sometimes became tail like tube, while TP3-05 has a rounded head and short non-contractile tail. These results suggest that TP3-01, TP3-02 and TP3-03 are members of the Siphoviridae family, TP3-04 belongs to Tectiviridae and TP3-05 is a member of Podoviridae. Protein banding analysis of the five phages revealed four major bands: 112.20, 70.79, 61.66, 50.12 and 39.81 kDa. The 112.20 kDa protein band does exist in all phages and it may represent the capsid protein. The other proteins are not universal and may be present in one phage and absent from another. In conclusion, BtaC18 was the host of at least five morphologically diversified phages which needs a lot of work to make a phage resistant bacterium.