4.5. *Discussion and conclusions*

By applying a similarity analysis, we were able to get different types of solutions for aerosol dynamic equation in cylindrical geometry. Moreover, many remarks are in order: first as seen from: Table (3), in some cases we have obtained the same structure of the reduced ordinary differential equation while the similarity variable and similarity forms are different which leads to different solutions. The second point is that the solution of the reduced dynamic equation of aerosols can be obtained in different forms; i.e. Exponential form, Bessel functions and Hyperbolic functions.

Finally, the similarity method proves to be very effective in constructing families of analytical solutions to the dynamic equation of aerosols. We have obtained a family of new solutions in this chapter.