

1135-33-140

Rosihan M Ali* (rosihan@usm.my), School of Mathematical Sciences, Universiti Sains Malaysia, 11800 Penang, Malaysia, and **See Keong Lee** and **Saiful R Mondal**. *On monotonicity and starlikeness of the generalized Bessel function.*

The generalized Bessel function

$${}_a\mathbf{B}_{b,p,c}(z) := \sum_{k=0}^{\infty} \frac{(-c)^k}{k! \Gamma(ak + p + \frac{b+1}{2})} \left(\frac{z}{2}\right)^{2k+p}$$

is studied for a fixed $a \in \{1, 2, 3, \dots\}$. Representation formulations for ${}_a\mathbf{B}_{b,p,c}$ are derived in terms of the parameters a, b , and p , and the function ${}_a\mathbf{B}_{b,p,c}$ is shown to be a solution of a differential equation of order $a + 1$. Monotonicity properties of ${}_a\mathbf{B}_{b,p,c}$ are also investigated for $c \leq 0$. Finally, the radius of starlikeness of positive order is obtained for the normalized analytic function

$$\mathbf{f}_{a,\nu}(z) := \left(2^{a\nu-a+1} a^{-\frac{a(a\nu-a+1)}{2}} \Gamma(a\nu + 1) {}_a\mathbf{B}_{2a-1, a\nu-a+1, 1}(a^{a/2}z) \right)^{\frac{1}{a\nu-a+1}}$$

in the unit disk. When $a = 1$, the results obtained reduced to earlier known results. (Received August 02, 2017)