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Research article

## On the theory of fractional terminal value problem with $\psi$ -Hilfer fractional derivative

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In this paper, we prove the existence and uniqueness of solutions of a new class of boundary value problems of terminal type for  $\psi$ -Hilfer fractional differential equations. The technique used in the analysis relies on the Banach contraction principle and Krasnosleskii fixed point theorem. Moreover, we use generalized Gronwall inequality with singularity to establish uniqueness and continuous dependence of the  $\delta$ -approximate solution. Finally, we demonstrate some examples to illustrate our main results.

**Keywords:** fractional differential equations, Gronwall inequality, fixed point theorem, terminal value problem

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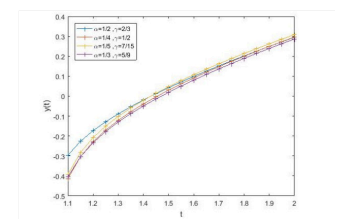
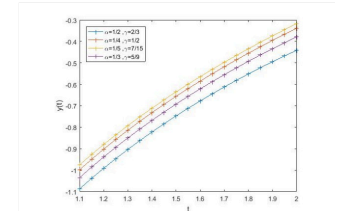
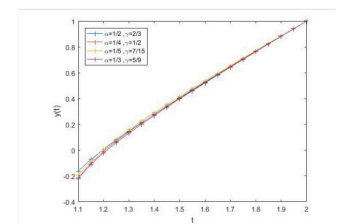
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