

INEQUALITIES OF THE HERMITE–HADAMARD TYPE FOR QUASI–CONVEX FUNCTIONS VIA THE (k,s) –RIEMANN–LIOUVILLE FRACTIONAL INTEGRALS

EZE R. NWAEZE

Abstract. Recently, Hussain et al. in the paper [Some k -fractional associates of Hermite–Hadamard's inequality for quasi-convex functions and applications to special means, Fractional Differential Calculus, 7(2) 2017, 301–309] established some new Hermite–Hadamard type inequalities for functions whose absolute values are quasi-convex via the k -Riemann–Liouville fractional integral operators. The purpose of this article is to extend and generalize the results, obtained in the aforementioned paper, via the (k,s) -fractional integrals.

Mathematics subject classification (2010): 26A33, 26D15, 26A51.

Keywords and phrases: Hermite–Hadamard inequality, quasi-convex function, (k,s) -Riemann–Liouville fractional integrals, Hölder's inequality, power mean inequality.

REFERENCES

- [1] P. AGARWAL, M. JLELI AND M. TOMAR, *Certain Hermite–Hadamard type inequalities via generalized k -fractional integrals*, J. Inequal. and Appl. **2017** 2017:55.
- [2] S. S. DRAGOMIR AND C. E. M. PEARCE, *Quasi-convex functions and Hadamard's inequality*, Bull. Austral. Math. Soc. **57** (1998), 377–385.
- [3] S. S. DRAGOMIR AND C. E. M. PEARCE, *Selected Topics on Hermite–Hadamard Inequalities and Applications*, RGMIA Monograph, Victoria University, 2000.
- [4] J. HADAMARD, *Étude sur les propriétés des fonctions entières et en particulier d'une fonction considérée par Riemann*, J. Math. Pures Appl. **9** (1893), 171–216.
- [5] R. HUSSAIN, A. ALI, A. LATIF AND G. GULSHAN, *Some k -fractional associates of Hermite–Hadamard's inequality for quasi-convex functions and applications to special means*, Fractional Differ. Calc. **7** (2) (2017), 301–309.
- [6] D. A. ION, *Some estimates on the Hermite–Hadamard inequality through quasi-convex functions*, Annals of University of Craiova, Math. Sci. Ser. **34** (2007), 82–87.
- [7] M. JLELI, D. O. REGAN AND B. SAMET, *On Hermite–Hadamard type inequalities via generalized fractional integrals*, Turk. J. Math. **40** (2016), 1221–1230.
- [8] A. A. KILBAS, H. M. SRIVASTAVA AND J. J. TRUJILLO, *Theory and Applications of Fractional Differential Equations*, Elsevier Amsterdam 2006.
- [9] S. MUBEEN AND G. M. HABIBULLAH, *k -fractional integrals and applications*, Int. J. Contemp. Math. Sciences **7** (2) (2012), 89–94.
- [10] E. R. NWAEZE AND D. F. M. TORRES, *Novel results on Hermite–Hadamard kind inequalities for η -convex functions by means of (k,r) -fractional integral operators*, arXiv: 1802.05619v1.
- [11] M. Z. SARIKAYA, Z. DAHMANI, M. E. KIRIS AND F. AHMAD, *(k,s) -Riemann–Liouville fractional integral and applications*, Hacet. J. Math. Stat. **45** (1) (2016), 77–89.
- [12] E. SET, M. TOMAR, M. Z. SARIKAYA, *On generalized Grüss type inequalities via k -Riemann–Liouville fractional integral*, Appl. Math. Comput. **269** (2015), 29–34.
- [13] E. SET AND B. ÇELIK, *Fractional Hermite–Hadamard type inequalities for Quasi-convex functions*, Ordu Univ. J. Sci. Tech. **6** (1) (2016), 137–149.

- [14] M. TOMAR, S. MUBEEN AND J. CHOI, *Certain inequalities associated with Hadamard k -fractional integral operators*, J. Inequal. Appl. **2016** 2016:234.