

Article

# New Results on $F$ -Contractions in Complete Metric Spaces

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**Abstract:** The main purpose of this paper is to improve, generalize, unify, extend and enrich the recent results established by Dung and Hang (2015), Piri and Kumam (2014, 2016), and Singh et al. (2018). In our proofs, we only use the property (F1) of Wardowski’s  $F$ -contraction, while the many authors in their papers still use all tree properties of  $F$ -contraction as well as two new properties introduced by Piri and Kumam. Our approach in this paper indicates that for most results with  $F$ -contraction, property (F1) is sufficient. It is interesting to investigate whether (F1) is sufficient in the case of multi-valued mappings.

**Keywords:**  $F$ -contraction; generalized  $F$ -contraction; convex contraction;  $\alpha$ -admissible mapping; triangular  $\alpha$ -admissible mapping; fixed point; Ćirić’s quasi-contraction

**MSC:** 47H10; 54H25; 54E50



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