

Fig. 7 J-Ring Height Difference Variation

Variation in Orimet, Slump and J-Ring flow is shown in Fig.8. Compared to all mix ratio, control mix with 1% steel

fibre showed more deviation which lies below the accepted range.

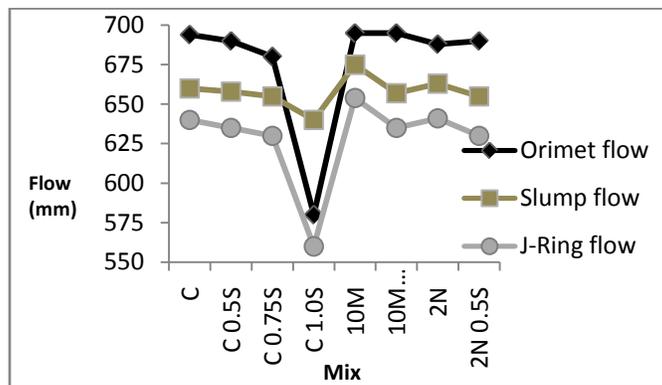


Fig. 8 Representation of Orimet, Slump and J-Ring flow

V. CONCLUSION

When the percentage of steel fibre increases, the workability and compressive strength of concrete gets reduced. Addition of silica particles had a better workability results compared to control concrete with steel fibre. The compressive strength and split tensile strength of concrete decreases when the percentage of steel fibre gets increased. Increase in percentage of steel fibre increases the flexural strength of concrete. Compared to control concrete, the mix with steel fibre. Due to the addition of steel fibres, the cylinder and prism continued to take more load until the specimen splitted into two, which proves the ductile behavior of steel fibre. SCC can be adopted in the areas of congested reinforcement and complicated structures, hence SCC is preferred over conventional concrete due to the ease flowing of concrete.

REFERENCES

[1] EFNARC Specification & Guidelines for self-compacting concrete, Englished, Norfolk (UK), European Federation for Specialist Construction Chemicals and Concrete Systems.

- [2] Heidari, Ghaffari and Ahmadvand, "Properties of Self-compacting Concrete Incorporating Alginat and Nano Silica", *Asian Journal of Civil Engineering* (BHRC), Vol. 16, No. 1, 2015.
- [3] M. Iyappan and J. Jagannathan, "High Strength Self-Compacting Concrete with Nanosilica", *International Journal of Emerging Trends in Engineering and Development*, Vol. 5, Issue 4, ISSN 2249-6149, 2014.
- [4] Jeevetha, S. Krishnamoorthi and G.S. Rampradheep, "Study on Strength Properties of Self-Compacting Concrete with Micro Silica", *International Journal of Innovative Research in Science, Engineering and Technology*, ISSN: 2319-8753, Vol. 3, Issue 4, April 2014.
- [5] Maghsoudi, M. Maghsoudi and M. Noori, "Effect of Nano Particles on SCC", *2nd Int. Conf. on Sustainable Construction Materials and Technologies*, ISBN 978-1-4507-1488-4, June 2010.
- [6] Mostafa Jalal, Ali Reza Pouladkhan, Ali Akbar Ramezani pour and Hassan Norouzi, "Effects of Silica Nanopowder and Silica Fume on Rheology and Strength of High Strength Self-Compacting Concrete", *Journal of American Science*, Vol. 8, No. 4, 2012.
- [7] Selim Korkmaz and Fahri Birinci, "Increasing the Tensile Strength of Fiber Reinforced Self-Compacting Concrete and Effects of Fiber Type and Orientation", *Romanian Journal of Materials*, Vol. 47, No. 3, pp. 361-369, 2017.