Review of: "Shear performance of polypropylene fiber reinforced high-strength self-compacting concrete beams"

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Potential competing interests: No potential competing interests to declare.

Dear Editor,

Article title: **Shear performance of polypropylene fiber reinforced high strength self-compacting concrete beams.**

Best greetings.

This research studies the mechanical properties of self-compacting concrete reinforced with polypropylene fibers and its structural behavior in reinforced concrete beams in shear. The method of drafting the research is poor, and I hesitated not to reject it because it contains a practical aspect and the results obtained from the experiments are promising and benefit the research specialty. However, before accepting the paper for publication, some issues and scientific facts need to be modified, corrected, or explained by additional information, as follows:

1. **In Introduction:**
    1. In the statement (To increase the tensile strength, usually the concrete was **added** by fiber materials). Please use **improved** instead of **added**.
    2. Rephrase the following statement, as follows: (Fiber reinforced concrete (FRC), which was developed more than sixty years ago, is **a** concrete reinforced with discrete short fibers **that has a relatively high tensile strength**, …).
    3. In the statement (It was **shown** that steel fibers improve the mechanical properties of concrete). Please use **concluded** instead of **shown**.
    4. The authors stated that (steel fibers have disadvantages such as being easily corroded, ….), talking about the disadvantages of steel fibers, and then talked about the alternatives that gave steel fibers as one of the alternatives. How is that? please rephrase this statement.
    5. The authors stated that (polypropylene can improve the tensile strength of **concretes**). The phrase **concrete** cannot be a plural.
2. **In paragraph (2), Experimental program:**
    1. In Table 1, the authors mentioned that the percent of silica fume is 570 kg. This is not correct. It is 57 kg, as the percentage of silica fume is 10 % of cement content as mentioned in the above text.
    2. The dosages of superplasticizer in Table 1 are 7.135 and 9.945 liters which represent 1.38 and 1.59 %, respectively, and not 1.5 % as mentioned in the above text. Please modify the statement in the text.

3. What is the density of concrete per each of the two mixtures? To evaluate it according to the mix proportion.
4. Please define the acronym **EFNARC**.
5. The authors stated in paragraph (2.2) that the number of beams is **16**, while they mentioned that the number is **18** in the abstract. Please modify the number in the abstract.
6. In Table 2, increasing the content of polypropylene fibers causes a decrease in compressive strength by 0.73, 2.43, and 3.16%, respectively, for concrete with 80 MPa strength. For 90 MPa concrete strength, the reduction in compressive strength becomes lower (0.33, 0.88, 1.87) %. The authors did not mention this decrease or its reasons. Please discuss this aspect within the research.
7. For tensile strength, the higher compressive strength concrete provided higher tensile strength also. Please discuss this aspect in the research.
8. In Figure 1, the compressive strength specified for each curve is **reversed**. Please correct the Figure.
9. The dimension of the beam section in paragraph (2.2) was (**200x120**) mm, and the length was **1600** mm, whereas, in the abstract, the authors mentioned that the dimensions were (**200x150**) mm and the length was **1800** mm. Please modify and mention the accurate dimensions.
10. Figure 2 shows the dimensions of the beam and its reinforcement. It appears in the figure that the reinforcement of the tension area was **two 10 mm diameter** bars and that the stirrups were **10 mm in size**. The dimensions mentioned in the text before the figure show that the reinforcement was **3 bars with** a diameter of **16 mm** in the tension area and that the stirrups had a diameter of **6 mm**. Please correct the reinforcement bar sizes.
11. In Figure 3, the dimensions are not accurate. The distance between the supports in the figure was **1250** mm, while it was stated in the text that the distance was **1400** mm. Also, the distance from the side of the beam to the support in the figure was **75** mm, while it was mentioned in the text that it was **100** mm.
12. On page 6, correct the number of **Table 3**.
13. The loading results for the beams and the cracking load for each beam were not mentioned in the research. It is necessary to mention the **cracking loads** for each beam, with the importance of discussing the results scientifically based on theories and hypotheses related to the structural behavior of beams.
14. It is not enough to mention the results only because the research in this form resembles a laboratory report. Scientific research needs to discuss the results and extract scientific facts about the behavior of beams from experiments.
15. **Figures 6 and 7** are not mentioned in the text.
16. Please use **doses** instead of the **amounts** in the statement (….and curves for different amounts of fibers and specified compressive strength….).

3. In conclusion, the authors stated that (The compressive strength of self-compacting polypropylene fiber concrete was **2 to 3**%....). However, the reduction in compressive strength was (**0.33 – 3.16**) % lower than the non-fibrous concrete.
4. There are many linguistic errors that need to be addressed.