

Fig. 7 Load-deflection curves

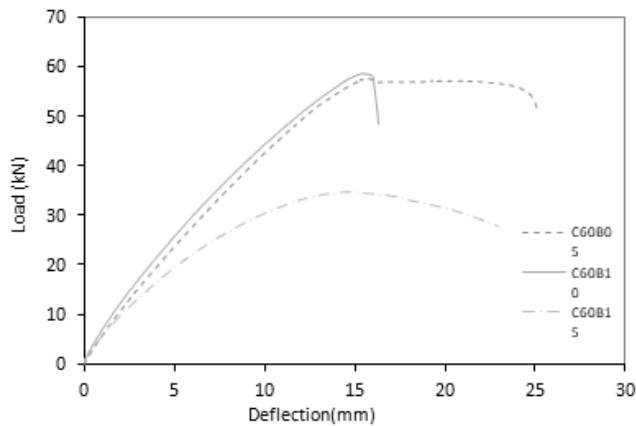


Fig. 8 Load-deflection curves of beams

V. CONCLUSION

The following conclusions are drawn based on the experiments of BFRC beams.

The beam having basalt fibers in the amount of 0.5% and 1.0% by volume reached a maximum load similar to the load reached by the reference beam, then the load decreased rapidly while a certain amount of deflection of the reference beam was observed beyond the maximum load without a significant loss in the load-carrying capacity. In case of the beam having basalt fibers in the amount of 1.0% by volume, the load decreased immediately after reaching the maximum value.

Introducing basalt fibers in the amount of 1.5% by volume resulted in a significant decrease in the load-carrying capacity. The load-carrying capacity was reduced by 45%.

It is observed that the addition of basalt fibers was not able to improve the strength and ductility of RC beam. Contrarily, it resulted in a behavior poorer than the behavior of reference beam. This can be attributed to the inadequate bonding between aggregate and concrete due to the adhering of basalt fibers to aggregate while mixing the fibers with concrete.

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