

# A comparative assessment of the accuracy of electronic apex locator (Root ZX) in the presence of commonly used irrigating solutions

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## ABSTRACT

### Introduction

This study aimed to evaluate the accuracy of Root ZX in determining working length in presence of normal saline, 0.2% chlorhexidine and 2.5% of sodium hypochlorite. The removal of all pulp tissue, necrotic material and microorganisms from the root canal is essential for endodontic success. On the other hand determination of an accurate working length is also a critical step in endodontic therapy.<sup>1</sup> Therefore proper instrumentation upto the apical constriction or also called as the cemento-dentinal junction<sup>2</sup> as seen earlier is also one of the vital factor for a good prognosis.

### MATERIALS AND METHODS

Sixty extracted, single rooted, single canal human teeth were used. Teeth were decoronated at CEJ and actual canal length determined. Then working length measurements were obtained with Root ZX in presence of normal saline 0.9%, 0.2% chlorhexidine and 2.5% NaOCl. The working length obtained with Root ZX were compared with actual canal length and subjected to statistical analysis.

### RESULTS

No statistical significant difference was found between actual canal length and Root ZX measurements in presence of normal saline and 0.2% chlorhexidine. Highly statistical difference was found between actual canal length and Root ZX measurements in presence of 2.5% of NaOCl, however all the measurements were within the clinically acceptable range of  $\pm 0.5$ mm.

### CONCLUSION

The accuracy of EL measurement of Root ZX within  $\pm 0.5$  mm of AL was consistently high in the presence of 0.2% chlorhexidine, normal saline and 2.5% sodium hypochlorite.

### CLINICAL SIGNIFICANCE

This study signifies the efficacy of ROOT ZX (Third generation apex locator) as a dependable aid in endodontic working length determination in the presence of different common root canal irrigating agents.

### REFERENCES

1. Ingle JI, Himel VT, Hawrish CE, Glickman GE. Endodontic cavity preparation. In: Ingle IJ, Bakland LK, editors. Endodontics. 5th ed. Elsevier India: B.C. Decker; 2003. pp. 405–570