





The results of our study showed that the surface roughness of the as-received Tanzo CuNiTi is less than the as-received Damon CuNiTi. But there is no statistical significant difference between the two ( $p > 0.05$ ). When comparing the surface roughness of the as-retrieved Tanzo and Damon CuNiTi archwires it showed that, as retrieved Tanzo CuNiTi wires showed less surface roughness than that of Damon archwires. Also there was a statistical significant difference between as received Tanzo and Damon CuNiTi archwires ( $p < 0.05$ ).

An important factor that influences the surface topography of orthodontic wires is, therefore, the production technique. The surface structure of an orthodontic archwire is an essential characteristic property that affects the esthetics, the corrosion behaviour and the biocompatibility of devices [14]. Many studies [15-18] confirm that a correlation exists between surface roughness and friction. The surface roughness of the wires influences other characteristics of the wires in addition to friction such as the esthetics of the product, the corrosion, the biocompatibility, and the performance [19-20].

According to the study by D'Anto the use of an AFM for the study of surface properties of orthodontic materials has many advantages including production of topographical three-dimensional images in real space with a very high resolution (around 10 Å), testing materials does not require any specific treatment priori, also provide with quantitative values for the selected parameters [21].

Also Pop et al. in his study on comparing surface topography of as-received, immersed and as-retrieved orthodontic archwires concluded that there is difference in the surface characteristics of intraorally used orthodontic archwires.

The noted advantage in this study was that it was performed *in vivo*, as the studies evaluating the surface characteristics of retrieved archwires were very few. The archwires are exposed to various factors present in the oral cavity during the orthodontic treatment [22]. There is a statistical significant difference ( $p < 0.05$ ) between the Ra values of retrieved Tanzo and damon wires. In fact the Ra values were decreased in retrieved Tanzo CuNiTi when compared to Damon CuNiTi.

### CONCLUSION

The following conclusions can be drawn from the surface roughness of both as received and retrieved Tanzo CuNiTi and Damon CuNiTi are influenced by the intraoral environment. Retrieved Tanzo and Damon CuNiTi are having higher surface roughness value (Ra) than the as-received wires. In that Tanzo CuNiTi is having lesser surface roughness than the Damon CuNiTi. When comparing the surface roughness of the as received Tanzo and Damon CuNiTi, the Ra ( $\mu\text{m}$ ) values of Tanzo CuNiTi is less as compared to Damon CuNiTi, but it is not statistically significant.

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