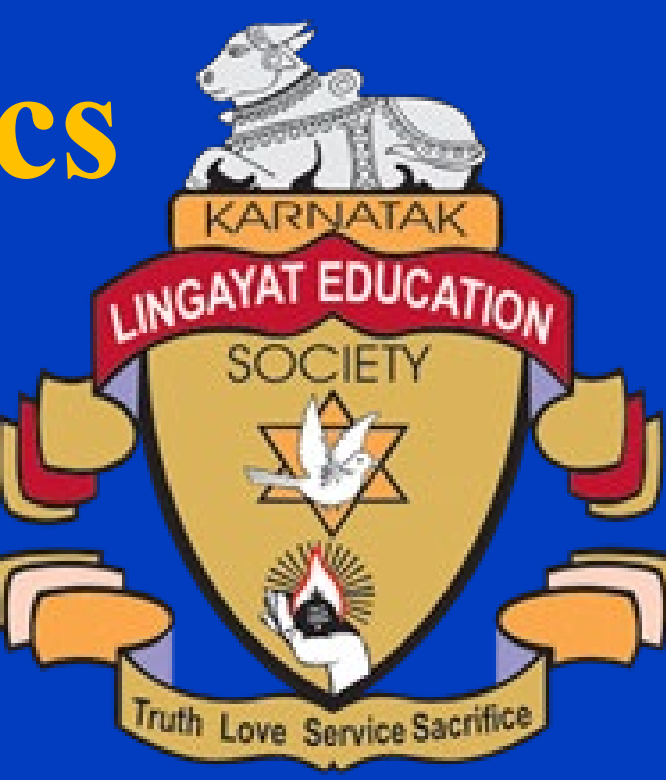




Effect of different types of luting cements and their film thickness on the translucency and fluorescence of lithium disilicate ceramics

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Purpose

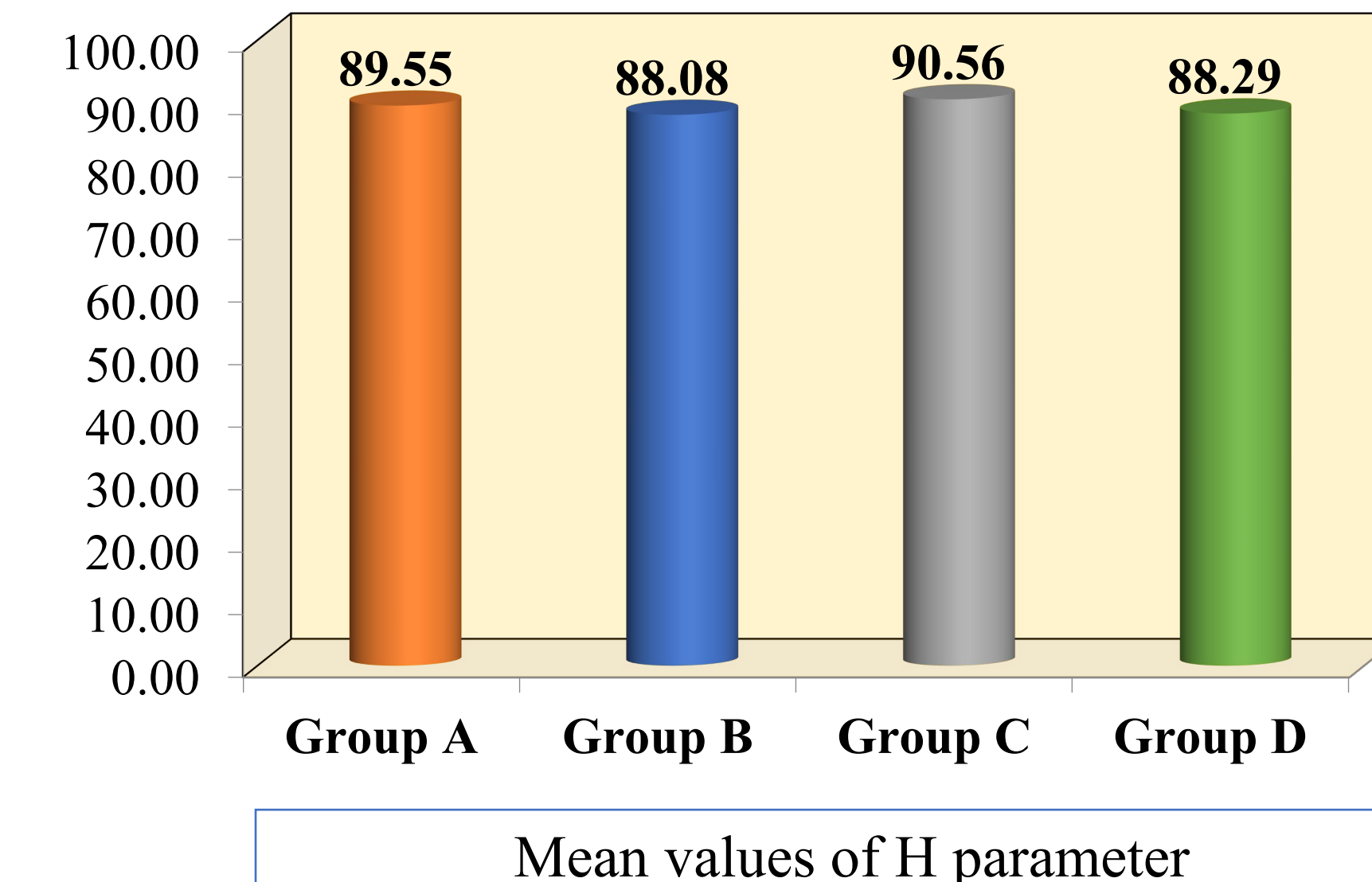
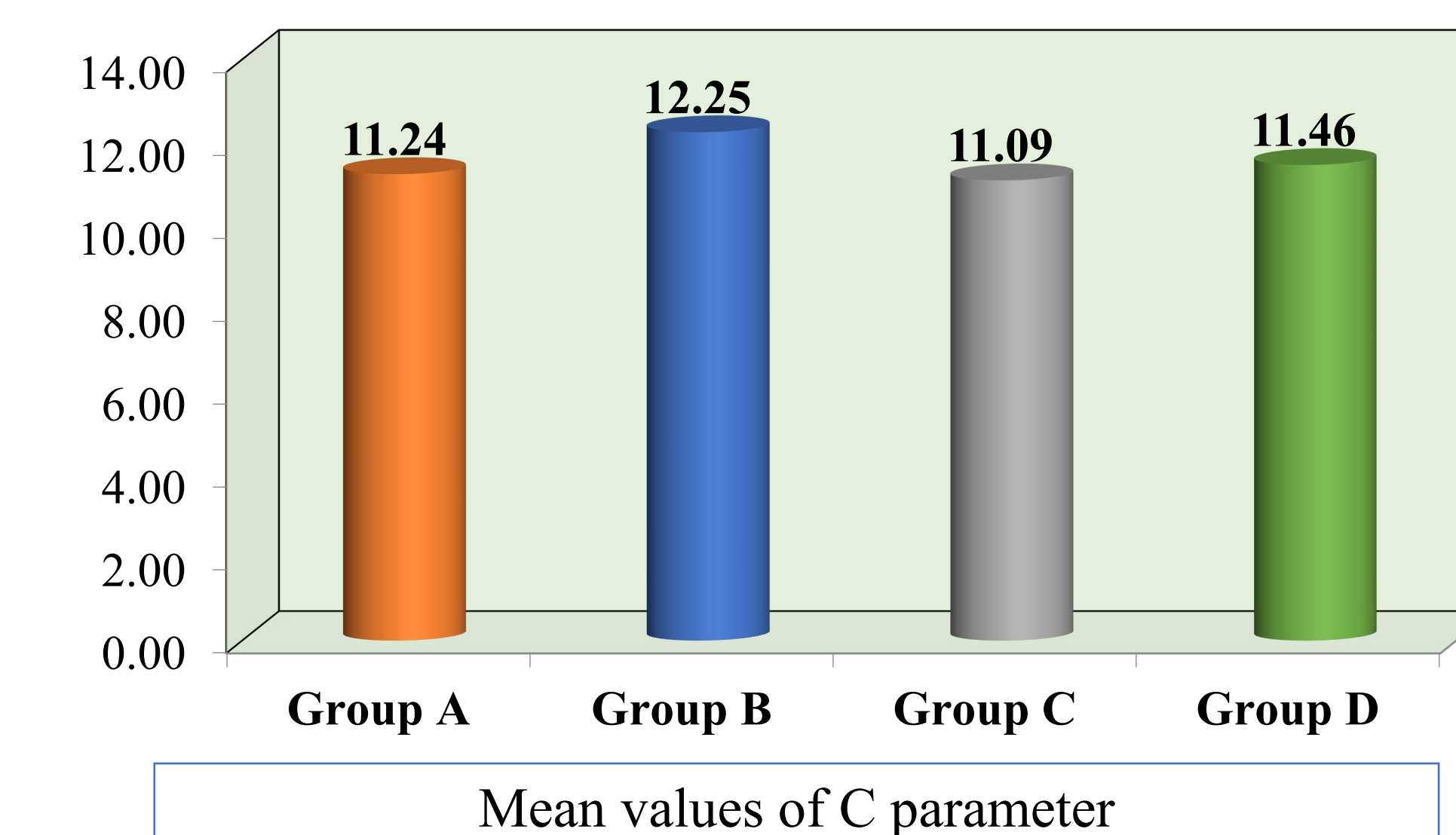
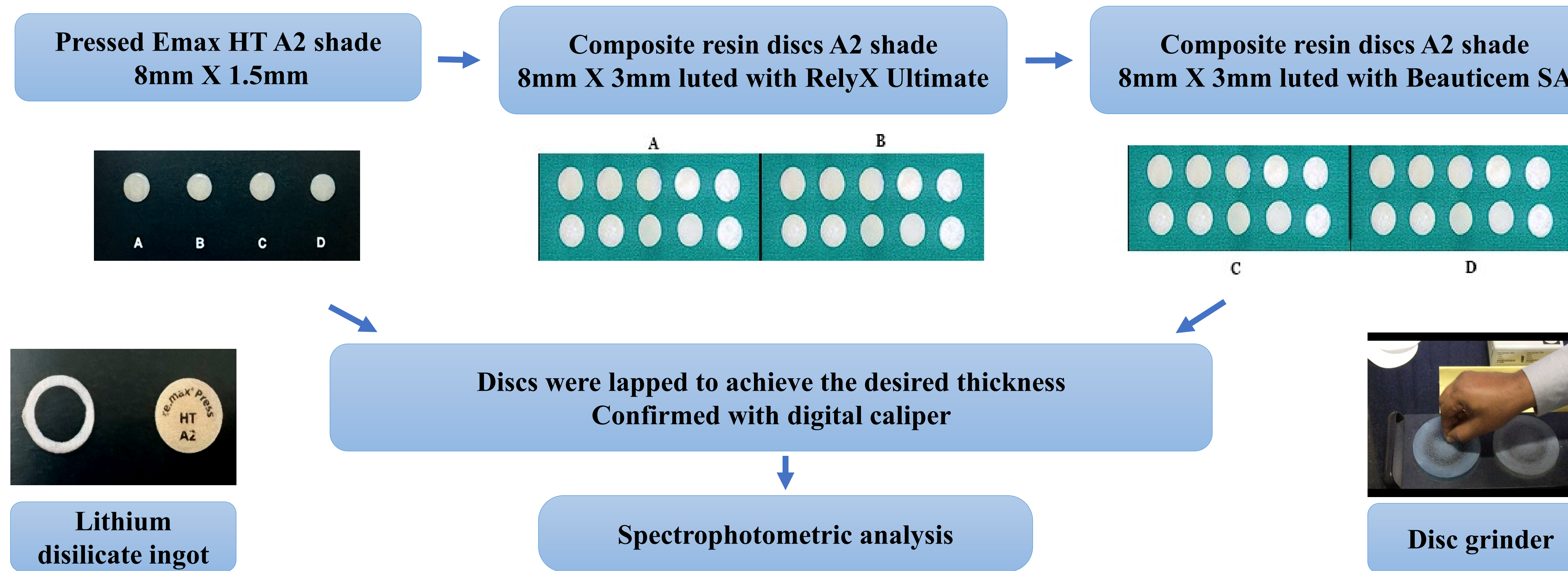
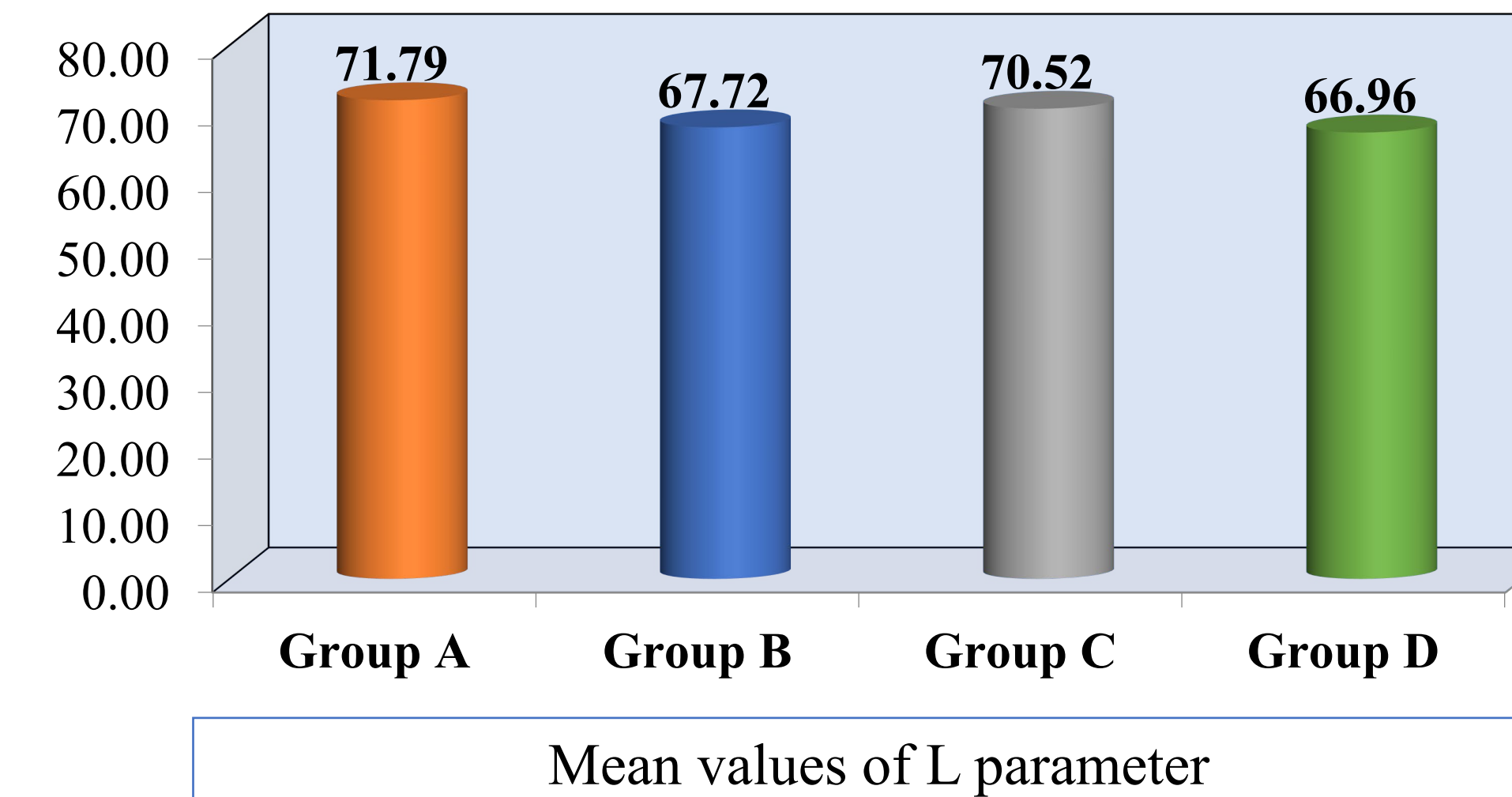
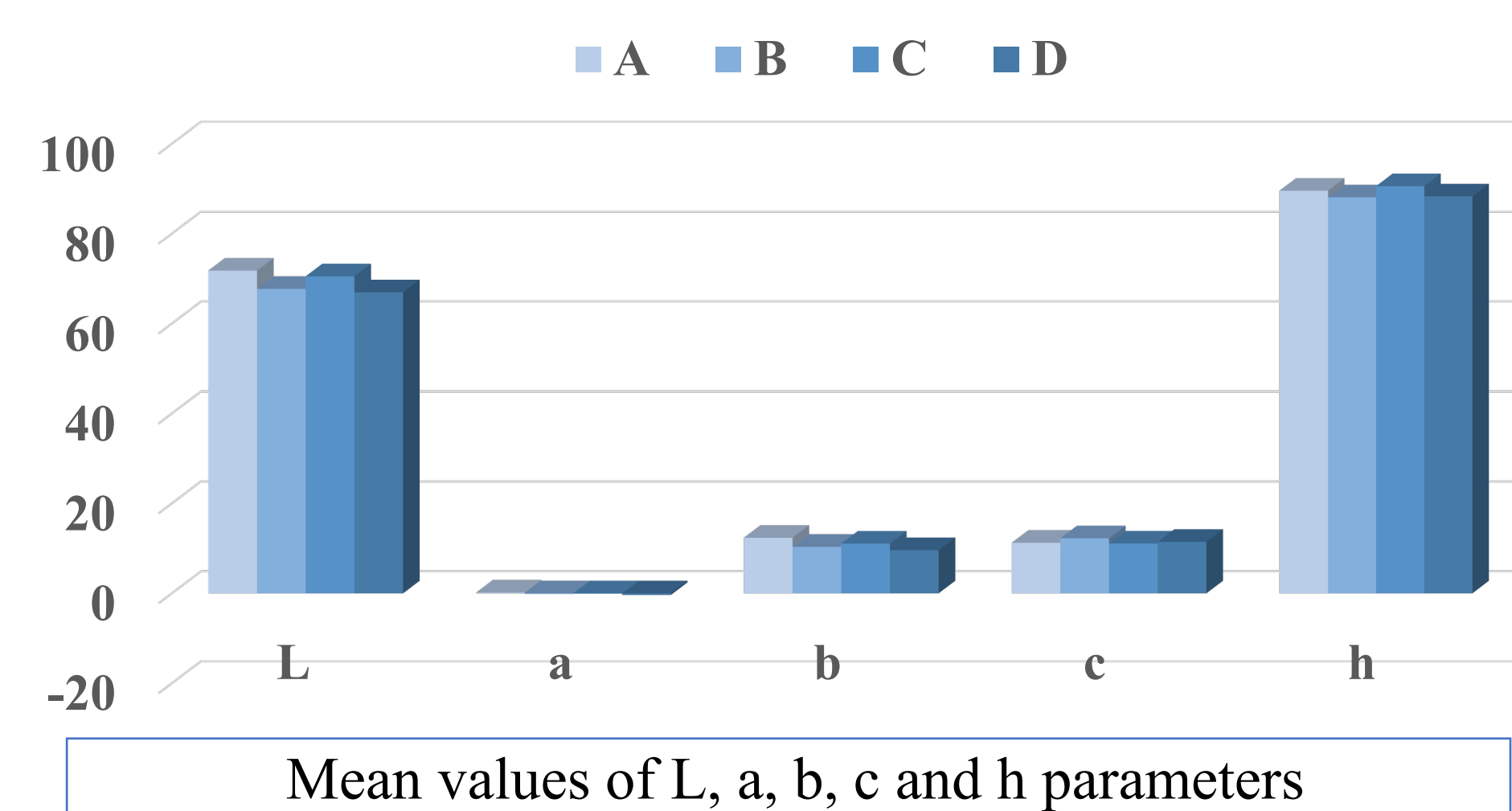
To evaluate the effect of RelyX Ultimate (adhesive resin cement) and BeautiCem SA (self-adhesive resin cement) on the translucency and fluorescence of lithium disilicate ceramics with cement thickness of 12 and 25 μm .

Methodology

Groups	Type of Cement	Brand Name	Film thickness	Manuf.
A	Adhesive resin cement	RelyX Ultimate	12 μm	3M ESPE
B	Adhesive resin cement	RelyX Ultimate	25 μm	3M ESPE
C	Self-adhesive resin cement	BeautiCem SA	12 μm	SHOFU
D	Self-adhesive resin cement	BeautiCem SA	25 μm	SHOFU

- **Fabrication of ceramic specimen** - Four disc-shaped samples of IPS Emax Press HT Ivoclar Vivadent 8mm X 1.5 mm.
- **Fabrication of composite specimen** - Forty composite resin discs of A2 shade 8mm X 3 mm.
- **Disc grinder with a lapping kit** - Mechanically thins the specimens with high quality and uniform thickness. The grits used were 40 μm , 15 μm , and 5 μm . The discs were lapped to achieve the desired film thickness of 12 μm and 25 μm . This ensured the accurate thickness of cement on the composite discs with parallel surfaces to avoid any discrepancy in the readings.
- **Spectrophotometer** - The specimens were evaluated for translucency and fluorescence. Measurements were recorded in terms of L*,a*,b*,c*,h* coordinate with CIELAB color space.

In-Vitro Study



Results

The mean L values obtained for RelyX Ultimate and BeautiCem SA 12 μm was 71.79 and 70.52 whereas for 25 μm it was 67.72 and 66.96 respectively. RelyX Ultimate cement of 12 μm thickness produced significant translucent and fluorescent effect for lithium disilicate ceramics followed by RelyX Ultimate cement of 25 μm thickness, which was followed by BeautiCem SA of 12 μm thickness and the least desirable result was obtained for 25 μm BeautiCem SA.

Discussion

The null hypothesis of the study that different type and thickness of luting cement has no effect on the translucency and fluorescence of lithium disilicate ceramic was rejected. A higher L value means the object is more translucent when compared to a lower value of L. Materials that do not fluoresce will be perceived as slightly darker than materials that do fluoresce if all other color attributes are the same. Hence, in this study fluorescence was calculated by the L value. The higher the L value means the lighter the object and more is the fluorescence of the object.

Conclusion

Translucent cement with minimum film thickness results in maximum light transmission through the restoration thereby giving a natural appearance. On the contrary opaque cement with higher film thickness presents with the strongest masking ability of a dark colored background when compared to a non- opaque luting agent and the other thicknesses tested.

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Disclosure: The study was conducted while presenters' affiliation to K.L.E.S Institute of Dental Sciences, India.