Clin Oral Invest (2013) 17:1793
DOI 10.1007/s00784-013-1016-1

LETTER TO THE EDITOR

Comment on "Development of digital shade guides for color assessment using a digital camera with ring flashes [Oi-Hong Tung et al., *Clinical Oral Investigations* (2011) 15:49–56]"

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Received: 23 April 2013 / Accepted: 3 June 2013 / Published online: 14 July 2013

In their article [1], Tung et al. stated in the Introduction section that the "the color information received from a digital camera is device-dependent." In the Reliability of digital images section, the authors describe the transformation of the color information as "The color space of the software was set the same as the default color space of the camera, and the image mode was changed from RGB to *L*a*b**." However, the transformation is incorrect.

The reasons are as the follows:

> The RGB color space is the device-dependent color space, which is the default color space in the camera and the Photoshop software. The same RGB values on different devices show different color effects [2]. That "The color space of the software was set the same as the default color space of the camera" will not calibrate the bias of the device in the color. So the *L*a*b** values from the method in the article are not correct.

The correct method is as follows:

> Transform the RGB values of the images into *L*a*b** with the camera profile.

The profile describes the relationship between a device's RGR control signals and the actual color that those signals produce. Specifically, it defines the CIE LAB values that correspond to a given set of RGB numbers [2].

If the authors change the RGB values to the *L*a*b** values with the camera profile, the conclusion would be more persuasive.

References

1. Tung OH, Lai YL, Ho YC, Chou IC, Lee SY (2011) Development of digital shade guides for color assessment using a digital camera with ring flashes. Clin Oral Investig 15(1):49–56
2. Fraser B, Murphy C, Bunting F (2004) Real world color management: industrial-strength production techniques, 2nd edn. Peachpit, San Francisco, pp 67–69, 81–9

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