COMPARISON BETWEN METHODOLOGIES TO EVALUATE THE PIGMENTATION INTENSITY AS A NUTRITION AND GENETIC IMPROVEMENT TOOL IN FISH

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In order to provide an efficient tool for quantifying the staining intensity in fish, we compared the efficiency of using four distinct methodologies. The dwarf-red gouramy (*Colisa lalia*) was the species chosen as a model for the red-yellow color expression. Among the evaluated methods, both the traditional method, using the portable colorimeter in the Hunter System (L*a*b*) and the quantification using the software in Hunter system from predefined regions of specific coloration, were considered reliable tools to quantify the pigmentation intensity in fish skin, similarly to the use of the portable colorimeter in salmonids or characids. Therefore, the use of these tools might be extended to studies on nutrition, selection or genetic improvement, focusing improvements in ornamental fish quality for marketing.

Figure 1 - Ornamental fish dwarf-red gouramy skin pigmentation measurement scheme *in vivo* based on five points (50.3 mm² each) identified with circles numbered from one to five, using a portable colorimeter

Figure 2 - Ornamental fish dwarf-red gouramy skin pigmentation measurement scheme based on regions delimited by dotted circles and numbered from one to three and the three points mean was used for color quantification in each region, from digital photos, using a software

Table 1 - Color mean values indexes in (L* a* b*) system, obtained by the portable colorimeter, Minolta-M10, from fish *in vivo*, CV (%) and adjusted regression equations by their determination coefficients (r^2)

Color indexes	Canthaxanthin level (X) added to diet (mg/Kg)					CV (%)	Regression equations: $\hat{Y}$ =
	0	44.4	94.2	137	180		
L	48.5	48.0	47.2	46.7	44.7	3.75	48.8 –0.0134.X (r^2 = 0.91)
a	8.7	9.5	11.8	12.1	14.2	22.65	8.5 +0.0209.X (r^2 = 0.96)
b	14.3	145	14.3	13.5	14.0	26.21	14.1

Table 2 - Color mean values indexes in the Hunter coordinate system (L* a* b*) obtained from dwarf-red gouramy through digital photos with Adobe® Photoshop CS2, represented by the arithmetic means of distinct color areas defined as regions one and three, CV (%) and adjusted regression equations by their coefficient of determination (r^2)

Color indexes	Canthaxanthin level (X) added to diet (mg/Kg)					CV (%)	Regression equations: $\hat{Y}$ =
	0	44.4	94.2	137	180		
L	56.4	51.7	52.0	48.6	48.8	4.57	55.1 –0.0281.X (r^2 = 0.84)
a	11.6	12.3	14.5	17.6	19.2	29.14	10.9 +0.0316.X (r^2 = 0.97)
b	20.6	26.4	27.5	30.5	31.3	37.44	27.3