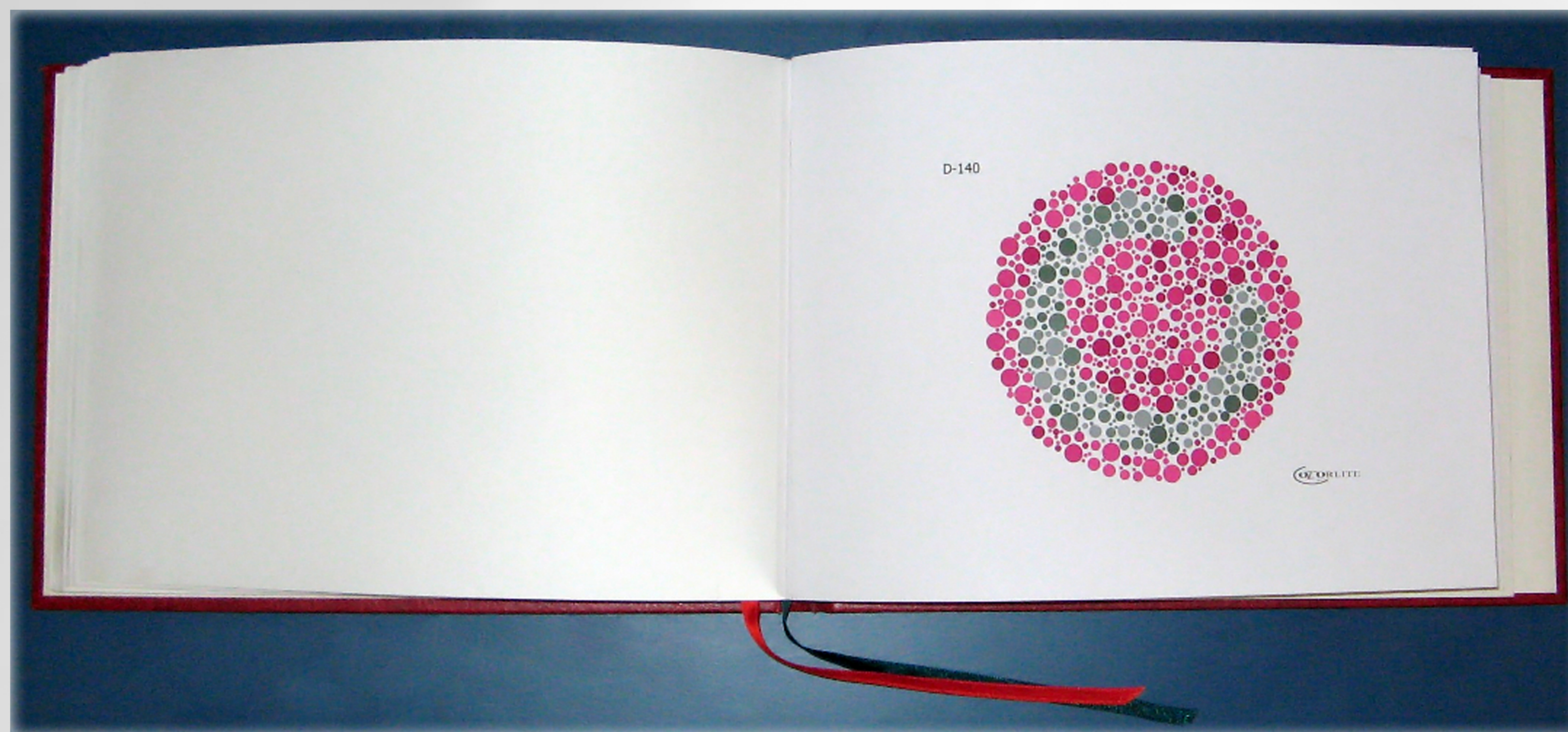


Pseudo-Isochromatic Plates

for Measuring the Ability to Discriminate Colours

K. Wenzel¹, K. Ladunga², K. Samu¹, I. Langer³, F. Szőke²



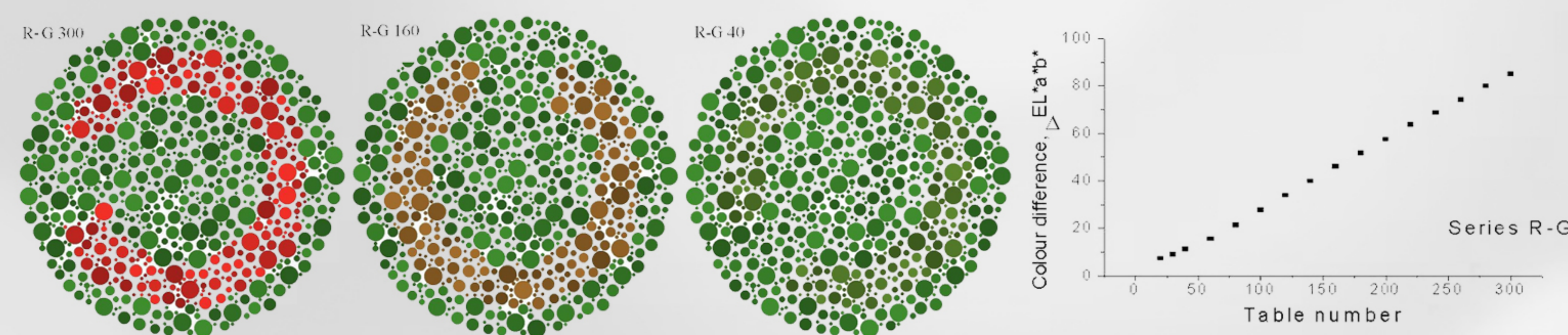
The new pseudo-isochromatic plates can measure the ability to discriminate colours. The plates may also be used to determine whether the tested person is protanomal or deuteranomalous.

There are 3 series of test plates in the test book. In all the 3 series, plates are arranged in order of increasing difficulty. Plates show one Landolt-C each, in 8 different positions. The first plate has the lowest level of difficulty; anomalous trichomats are able to distinguish the symbol but dichromats are not. In the next plates, the Landolt C symbol gradually fades into the background, up to a colour difference of $\Delta E=4$ in the case of the last plate.

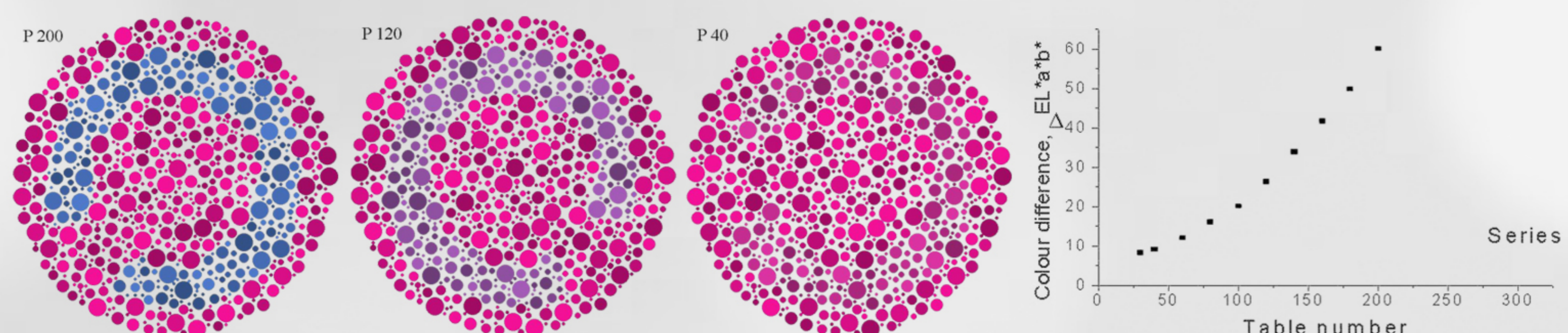
In the first (R-G) series, a red Landolt C is shown in front of a green background. This series serves the purpose of establishing the severity of colour vision deficiency.

In the second (P) series, colours are located on the protan confusion line whereas in the third (D) series, on the deutan confusion line. The P and D series are to distinguish protanomalous and deuteranomalous person.

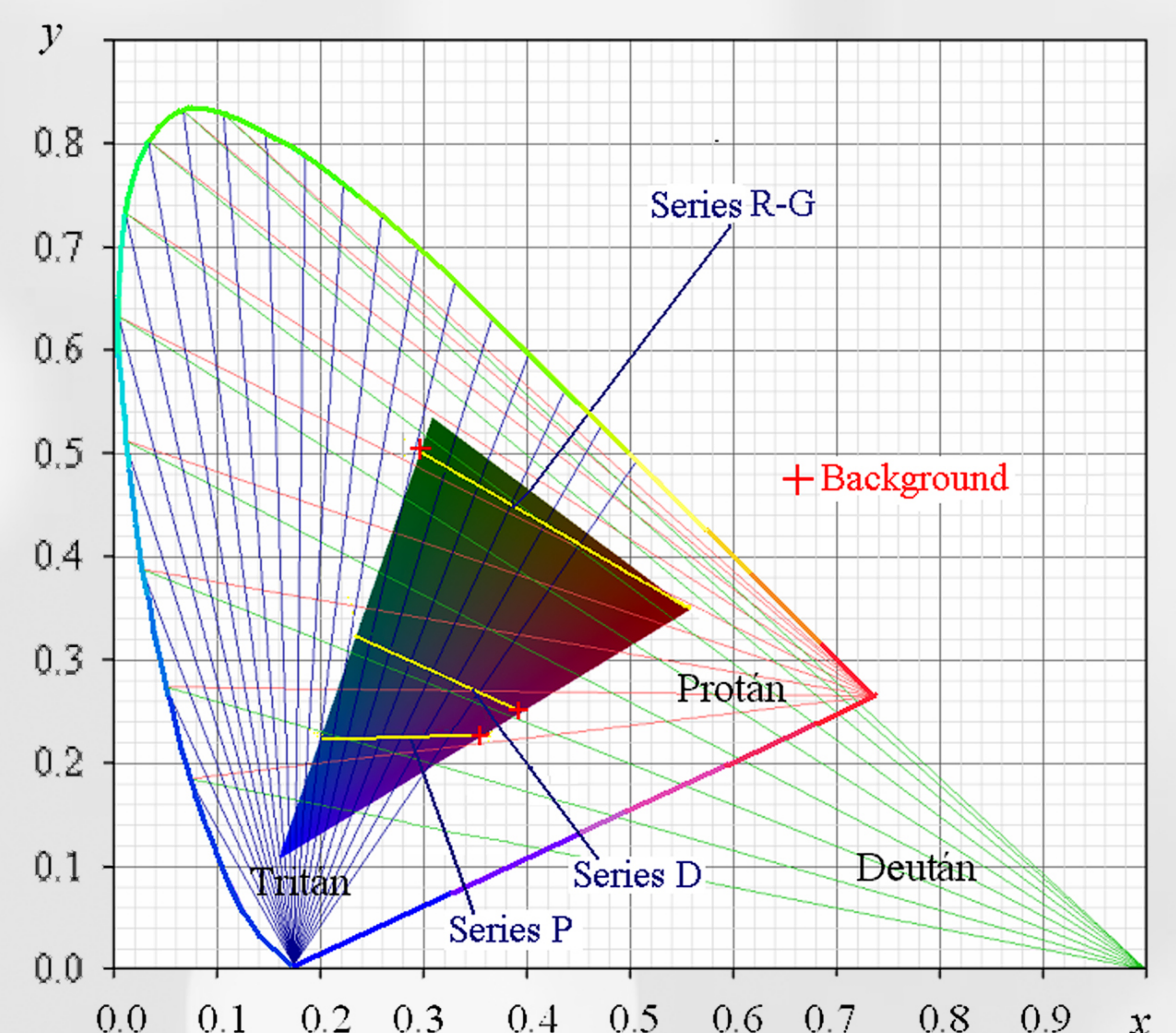
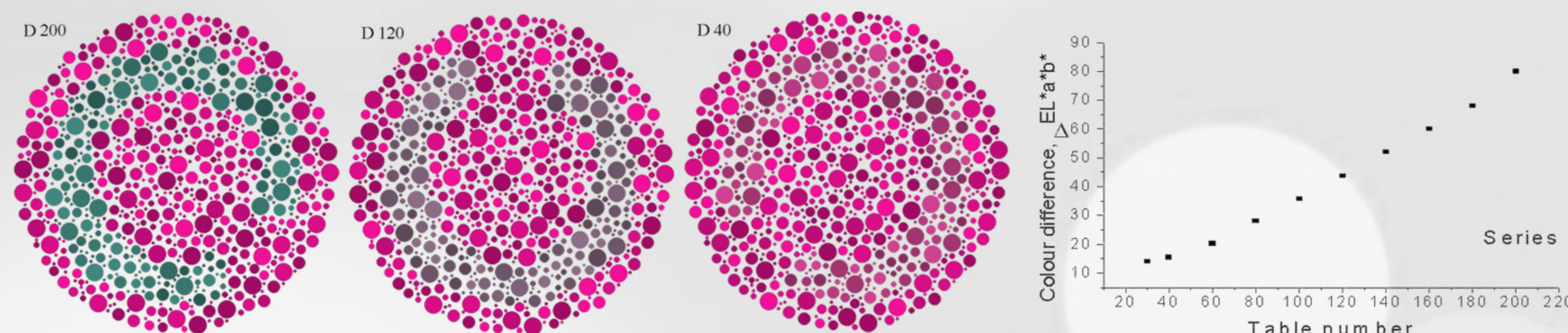
Series R-G



Series P



Series D



The ΔE difference between the colours of the Landolt-C and the background gradually decreases in the series of plates.

The new pseudo-isochromatic plates were used to test 100 persons with colour vision deficiency and 20 persons with normal colour vision. Our results showed a 95% efficiency in separating colour anomalies and colour normals or protans and deutans, as verified by anomaloscope.

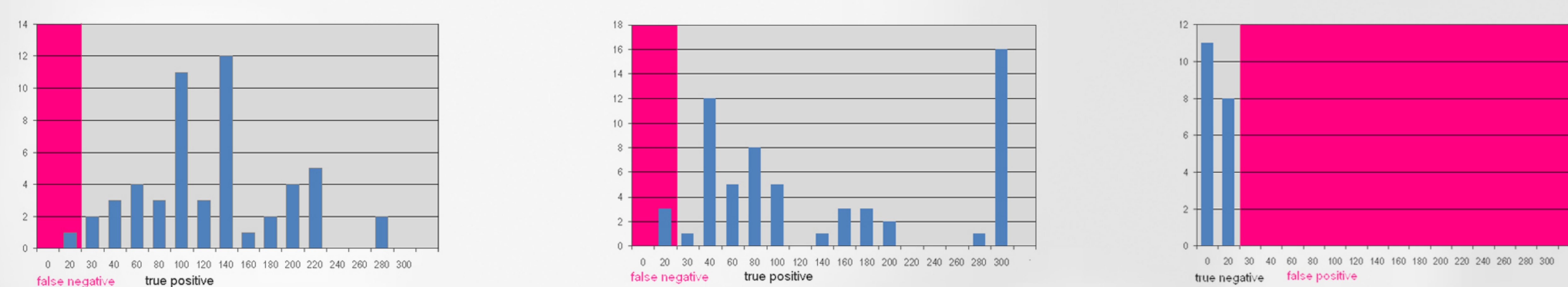
Protanomalous

Deuteranomalous

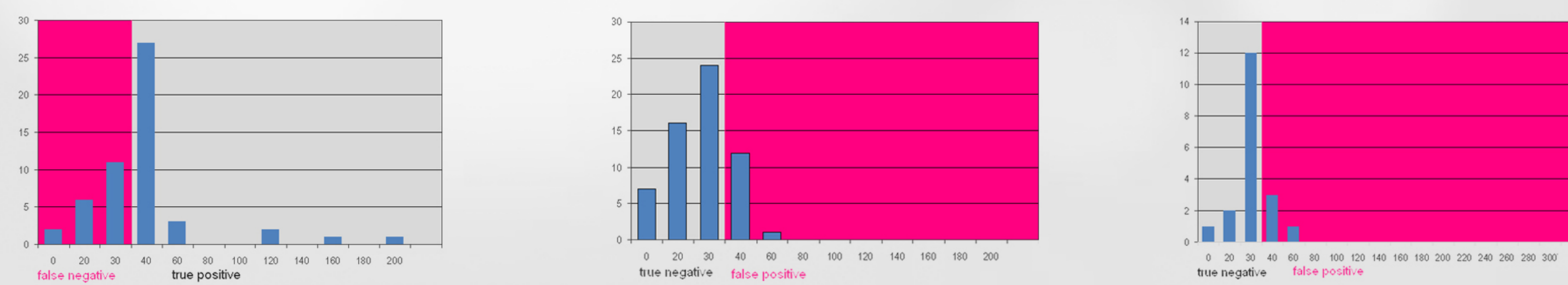
Normal

Conclusions

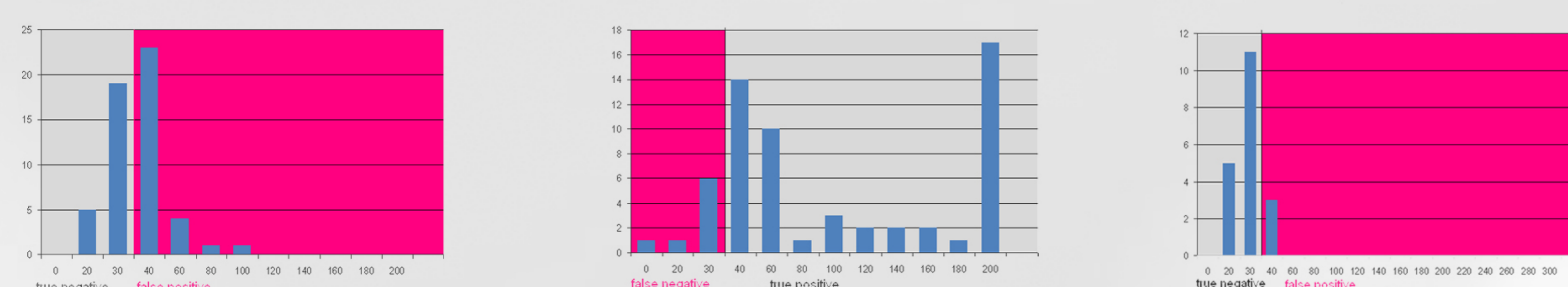
Series R-G



Series P



Series D



1. The test book is suitable for detecting colour vision deficiency as accurately as anomaloscope tests
2. The test book is suitable for differentiating protanomaly and deuteranomaly as accurately as anomaloscope tests
3. The test book is suitable for assessing the severity of colour vision deficiency by quantifying the ability to discriminate colours
4. The test book is suitable for verifying improved colour vision as a result of wearing glasses enhancing colour vision
5. The use test book gives prompt results and it is fun to use (a test takes about 5 minutes)
6. The test book is suitable for mass tests
7. The test book may also be used to test the colour vision of children