PT Schemes from Colombia

Camilo DAleman C., Eliana Chavarro M., Immer Caicedo G.
Mol Labs Ltda, Bogotá, Colombia

A matching exercise between proficiency-testing (PT) schemes from Colombia to Latin America, and global recognized schemes was done. We use information from five schemes under ISO 17043:2010 and ISO 13528:2005, as we do. Comparison to 21 measurand at similar levels with more than 15 participants was done; we found small differences in RSD, as the use of robust statistics merits.

ISO Standard 13528:2005 defines five procedures to establish an assigned value and another five to estimate the RSD for the measurand to be used in a PT evaluation. The selection makes a difference between providers, but matrix and measurement level also contributes.

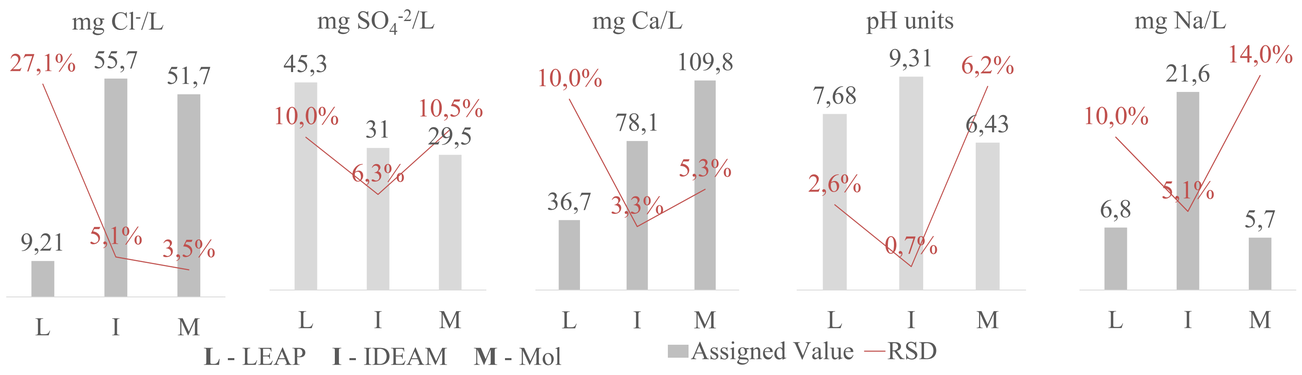

Fig 1. PT's in drinking water: assigned value in columns, is a reference for measurand level in matrix. On RSD lines: LEAP (L) assign perception values with a trend to 10%; IDEAM (I) Schemes, based on RTC certified reference materials, shows lower RSD in all the exercises. Mol Labs (M) consensus values has high dispersion.

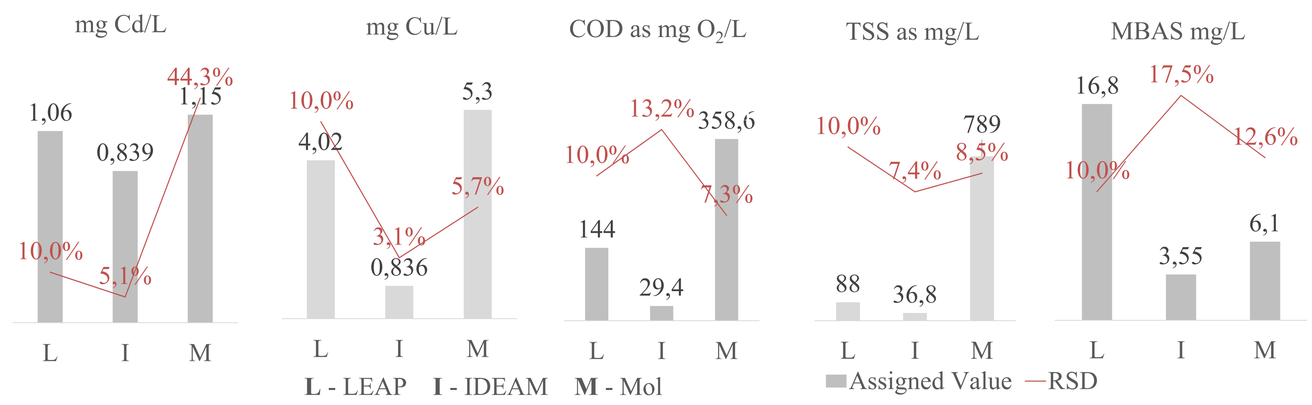

Fig 2. PT´s in wastewater: LEAP (L) assign 10%, IDEAM RSD from reference materials looks lower in every exercise, relative to the measurand level; Mol Labs (M) consensus can be showing technical competence from the laboratories.

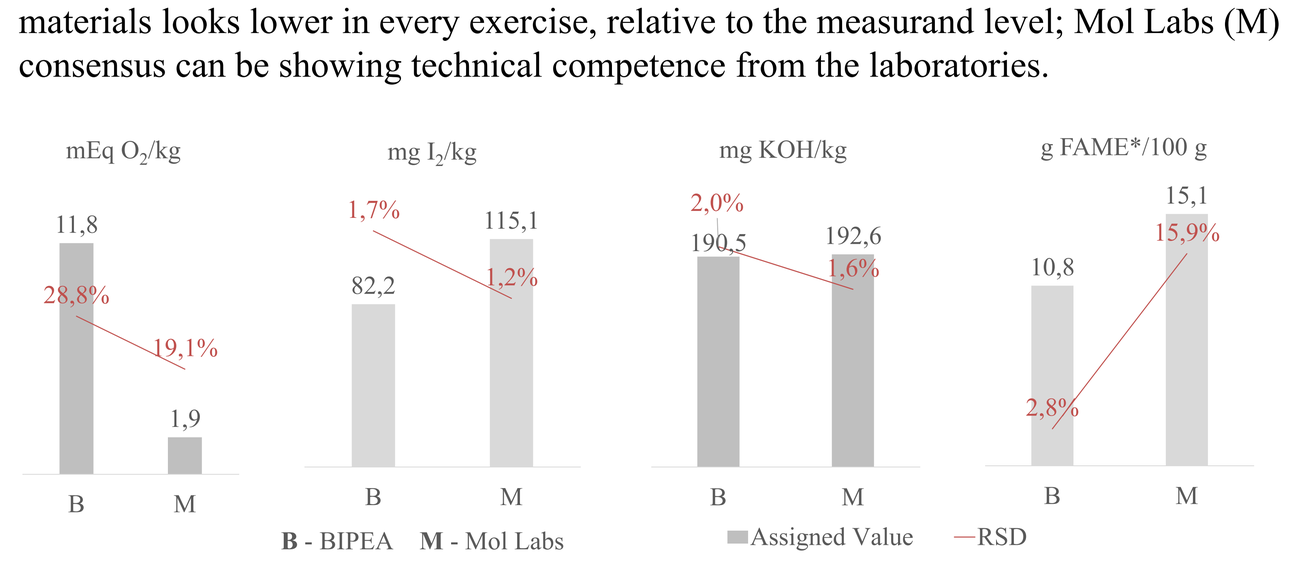

Fig 3. Vegetable oil PT´s: BIPEA (B) and Mol Labs (M). Consensus values on RSD. Low differences between far away exercises. Mol Labs FAMES exercise has few (less than 15) participants.

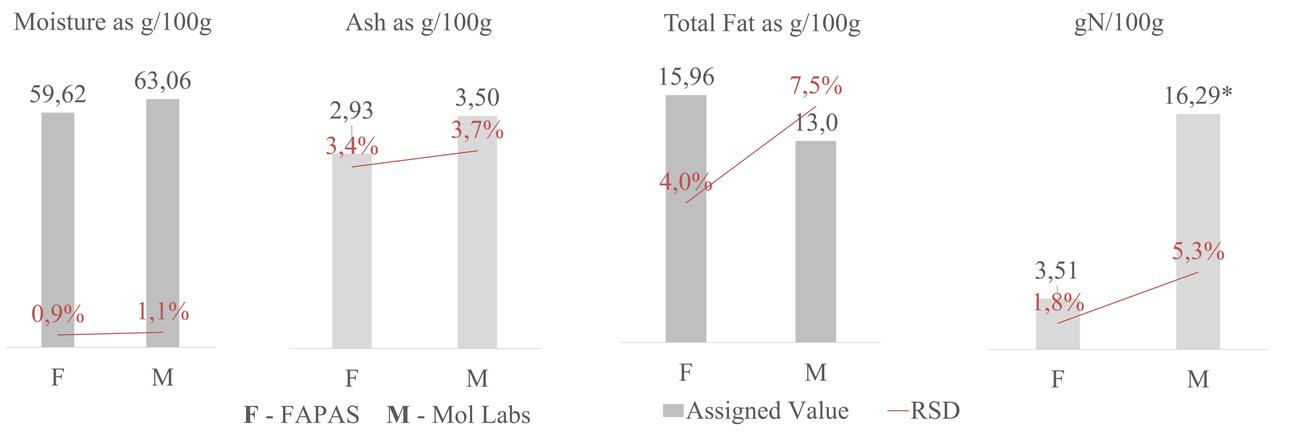

Fig 4. PT in canned meat: FAPAS (F) perception values and Mol Labs (M) consensus. Not so different values at > 17 participants in every measurand. But, Nitrogen measure is out of set.

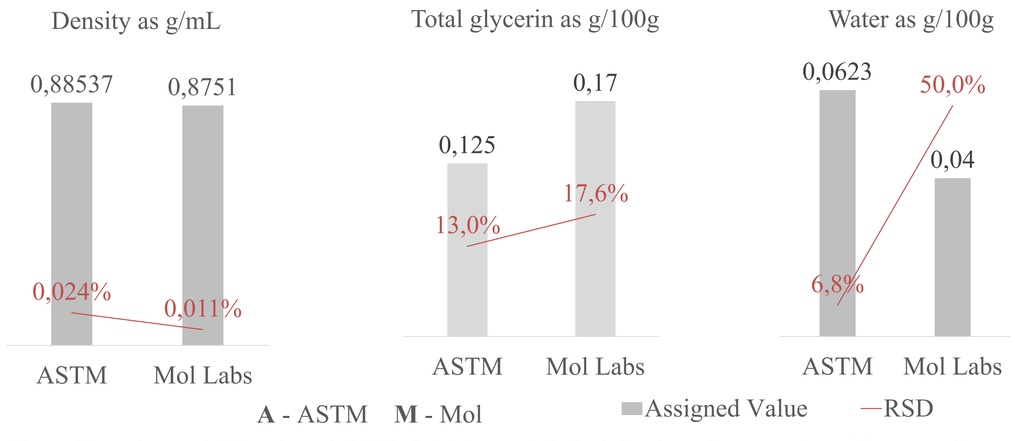

Fig 5. PT in Biodiesel Fuels: ASTM (A) and Mol Labs. Less significant figures and high RSD for measurements from Colombia. Technological (equipment) difference?.

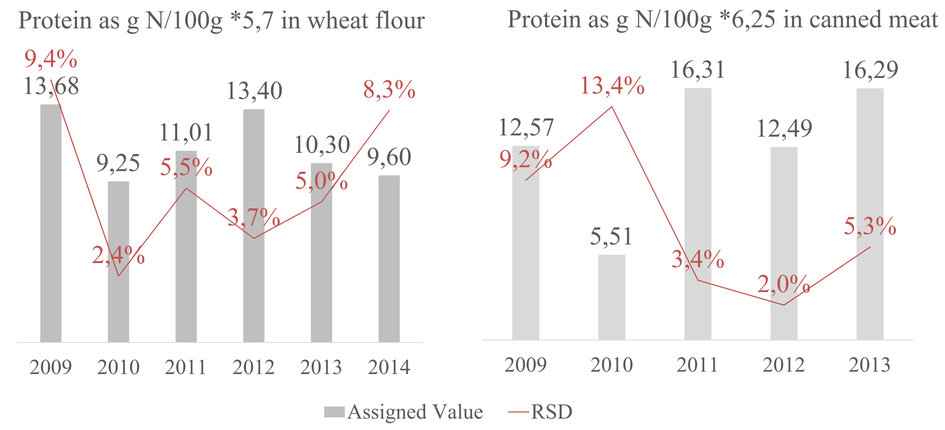

Fig 6. PT´s in protein measurement along the years. RSD value by statistical consensus: reasonable dispersion and consistency.

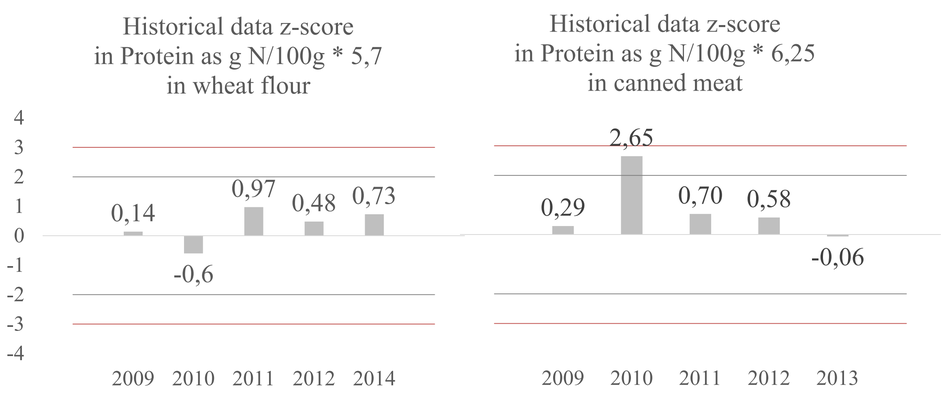

Fig 7. Consensus impact on performance evaluation: RSD disperse values without trends on laboratory results.

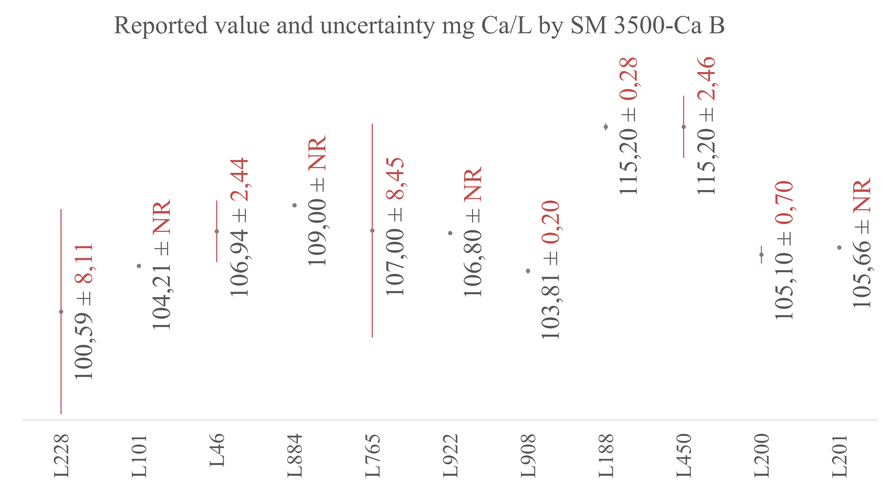

Fig 8. Uncertainty estimation is not the rule for this laboratories, and there are strong differences within reported uncertainty even though similar procedure and equipment.

177 PT schemes from Colombia (2008-2014) had a limit on participant laboratories: some proposed exercises don't arrive to a minimum of ten. Schemes for water and food with measurand levels between g/L and mg/L are successful, but for lower levels participants are not enough for statistical purposes.

There are hardware predicaments by old equipment everywhere, and scarce competences to the use of significant figures, and to report uncertainty in measurement data.

Bibliography

[1] LEAP. Scheme Report CHEM122. Potable Water. October 2013.

[2] LEAP. Scheme Report EFF025. Effluent & Waste Water. May 2011.

[3] Bureau InterProfessionnel d'Etudes Analytiques France. Rapport de Comparaisons Interlaboratoires. Huile d'olive 02-0121. Septembre 2010.

[4] FAPAS. Report 018. Nutritional components in canned meat. October 2012.

[5] ASTM. Committee D-2 Biodiesel Fuels Sample ID: BIOD1108. August 2011

MOL LABS
Quimiométricas