A rose by any other name would smell as sweet: A comment on "Standardization of xenon-127 and measurement of photon emission intensities" ; Vol 87, 342-347 (2014).

(Rodriques, et al , 2014), in reporting on their measurements of the photon emission intensities for the decay of ^{127}Xe, either seriously misread or misunderstood the work in one of the principal references they cited. In referring to this earlier work, the authors stated:

> *"Data from (Collé and Kishore. 1974) were given as absolute intensity measurements. The efficiency calibration was performed using standard sources, but no activity measurement of the ^{127}Xe source was given in the publication. For this reason we chose not to use these results for the absolute intensity of the 203-kev transition as a reference to evaluate the other γ-ray intensities."*

In their Introduction, (Rodriques, et al ,2014), wrote:

> *"Three measurements of relative γ-ray emission intensities and only one measurement of the absolute γ-ray emission intensities are available in the literature. "*

We wonder how statements so factually incorrect could have arisen from a reading of the original (Collé and Kishore, 1974) paper, particularly since the "activity" determinations on their sources were obtained from a gas counting technique that was very similar to that used by (Rodriques, et al, 2014), viz., internally with gas proportional counters. Admittedly, (Collé and Kishore, 1974) only used the word "activity" once in their paper (as a quality descriptor, not a quantity) , but this was hardly unusual 40 years ago. Surely, the detailed description of the experimental measurements using Bernstein-Ballantine proportional counters, including extensive discussion of the detection efficiency, indicate that these were indeed activity measurements valid for obtaining "absolute γ-ray intensities". The misunderstanding eludes us.

The title of the (Collé and Kishore, 1974) paper uses the phrase *"absolute γ-ray intensities."* The abstract of the (Collé and Kishore, 1974) paper states:

"....absolute disintegration rates of the sources were obtained by counting internally in gas proportional counters."

Section II of the (Collé and Kishore, 1974) paper, clearly explains:

> *"Following the γ-ray measurements, the targets were processed to separate and collect quantitatively the gaseous activity for the absolute disintegration measurements."*

After the lengthy explanation as to how the disintegration rates were determined, the (Collé and Kishore, 1974) paper further expresses exactly what was done:

> *"The absolute γ-ray intensities were then determined from the γ-ray emission rates (extrapolated to the end of irradiation) and these disintegration rates. "*

The concept of absolute γ-ray intensities, as obtained from the ratios of γ-ray emission rates and the measured disintegration rates for three sources, was referred to on 23 occasions in the paper; while the term

"absolute disintegration rate" appeared 5 times. Perhaps the fault in (Collé and Kishore, 1974) was in choosing to consistently use the phrase "disintegration rate" in contradistinction to the word "activity." Forty years ago in the nuclear physics community it was much more common to see use of the phrases "disintegration rate' or "decay rate" rather than the word "activity." In fact, at that time, the three designators were pretty much used interchangeably for the concept of dN/dt. Interestingly, even a 1973 paper on the present status of internal gas counting referred in an example to the "absolute disintegration rate of ^{37}Ar" (Garfinkel, et al, 1973). Lastly, it might be engaging to point out that the (Gehrke and Helmer, 1977) work, which was said by (Rodriques, et al, 2014) to be the "only one measurement", based their "activity" determination on a calibrated sample of gaseous ^{127}Xe obtained from the U.S. National Bureau of Standards[1] that was certified for radioactivity content in terms of "nuclear transformations per second". In the current parlance of the day, this was a "disintegration rate"!

If there is a moral to be found here, it might be that authors in referring to previous works should not search for specific words, but should look at what was actually done. In addition to disservices by authors, there is another, possibly graver, culpability. One must equally fault a review process that allows such fundamental flaws and gross misunderstandings to occur in peer-reviewed publications.

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[1] Known as the National Institute of Standards and Technology since 1988.