



## Photometric and spectroscopic study of periodic carbon-chain depleted comets from Belgian and Indian observatories

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Comets are remnants from the formation of the Solar System, and are believed to have kept a pristine composition since their formation 4.4 billion years ago. Studying comets is then of great interest to understand the dynamical and chemical evolution of the Solar System from the protoplanetary disk stage until now. Optical observations of comets give insight into the composition of their atmospheres, especially of the secondary species (volatiles processed by the solar radiation field). From such observations, A'Hearn et al. (1995) found two main groups of comets based on their chemical composition: typical and carbon-depleted; the latter group showing a clear depletion of the C2 and C3 species with respect to OH and CN. We present here new observations of several potential carbon-depleted Jupiter-family comets 4P, 57P, 260P and 398P (Jehin et al. 2020) from a photometric narrow-band survey with the Belgian 0.6m TRAPPIST-South (La Silla, Chile) and 0.6m TRAPPIST-North (Oukaimeden, Morocco) telescopes (Jehin et al., 2011) that are compared with Long-slit spectroscopic observations that were carried out with the 2m Himalayan Chandra Telescope (HTC) over different epochs. This work results from a collaboration in the framework of the BINA program.

