

UV LIGHT PHOTOGRAPHY: UNRAVELING THE DIFFERENT APPLICATIONS IN PALAEOLOGY

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The analysis of fossil specimens under ultraviolet (UV) light represents a new field of research which only in the last twenty years has been explored as a powerful tool to be used in palaeontology. Up to now this technique has been applied mainly on mollusc shells, but the number of studies dealing with other taxa, like vertebrate specimens, is increasing. Despite this, the analysis of fossil specimens under UV light represents a technique still in evolution; the knowledge of the best procedure of sample preparation and photography still needs to be deeply examined and new data to better understand the real potential of this method are required. After testing different procedures of specimen preparation and different photographic techniques in order to define a methodological protocol for the analysis of fossil specimens under UV light, we explore the diverse uses of UV light technique in palaeontology analyzing fossil specimens coming from different stratigraphic contexts (from the Permian to the Holocene, from Oman to Italy), having a different mineralogy and belonging to different taxa (bivalves, gastropods, brachiopods, crustaceans and reptile); also, we use two different wavelengths: the commonly used 365 nm, and the 440 nm, a “borderline wavelength” here adopted for the first time. As previously observed, the main application of UV light is for systematic purposes. Residual colour patterns in mollusc shells are rarely observable under visible light but can be revealed under UV light, as formerly pigmented regions of the shell fluoresce. Also, this technique allows to differentiate between specimens and matrix; indeed, it improves the visualization of specimens that are, in visible light, difficult to distinguish in colour or texture from the surrounding matrix providing greater clarity of some details like soft anatomical tissues. Finally, the use of UV light provides an inexpensive method to detect man-made interventions in fossil specimens and thus fake fossils.