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Spectroscopic study of Co-bearing spinel from Luc Yen (Vietnam)

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Over the past few years spinels have increased in popularity and thus in their relevance for the gem industry. These gemstones are classically known for their red to pink colour caused by chromium. However, blue cobalt-containing spinels from the Luc Yen region in Vietnam have more recently reached the market. These spinels from Luc Yen often show a slight alexandrite effect by changing their colour to a more purple tone under a tungsten light source (incandescent light). Although the Raman spectra only show differences between natural and synthetic cobalt spinels, the absorption trends in UV-Vis spectroscopy and the photoluminescence spectra also vary within the group of natural spinels. The different behaviour of both natural subgroups, the colour-changing spinels and those of invariant colour, is due to their diverse trace element chemistry – notably cobalt and iron - detected by LA-ICP-MS.

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Natural green amber from Ethiopia

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The discovery of Ethiopian amber is relatively new (Schmidt et al., 2010), and previous literature does not give an exact location. Also, the described amber appears to be mostly yellowish brown in colour.

On a recent visit to Ethiopia, one of the authors (LK) was presented with several pieces of green amber (Figure 1 left), which sometimes resembled the appearance of green autoclaved amber as seen in the mid- to late 2000's (Abduriyim et al., 2009). However, the colour of some of these was distinctly different, and some of the pieces contained plant matter and even insects (Figures 1 & 2).



Figures 1 & 2. Insects in green amber from Ethiopia