

RUTILE

Chemical formula: TiO₂

Crystal system: tetragonal

Color in thin section: red, reddish brown, orange, pale brown, sometimes almost opaque; usually weak pleochroism

Form: allotriomorphic grains, elongate prismatic crystals, acicular, or hair like crystals

Cleavage: good on {110} and {100}

Indices of refraction: $n_{\omega} = 2.61 - 2.65$ $n_{\epsilon} = 2.80 - 2.90$

Birefringence: 0.15 – 0.29

Optic sign: uniaxial positive

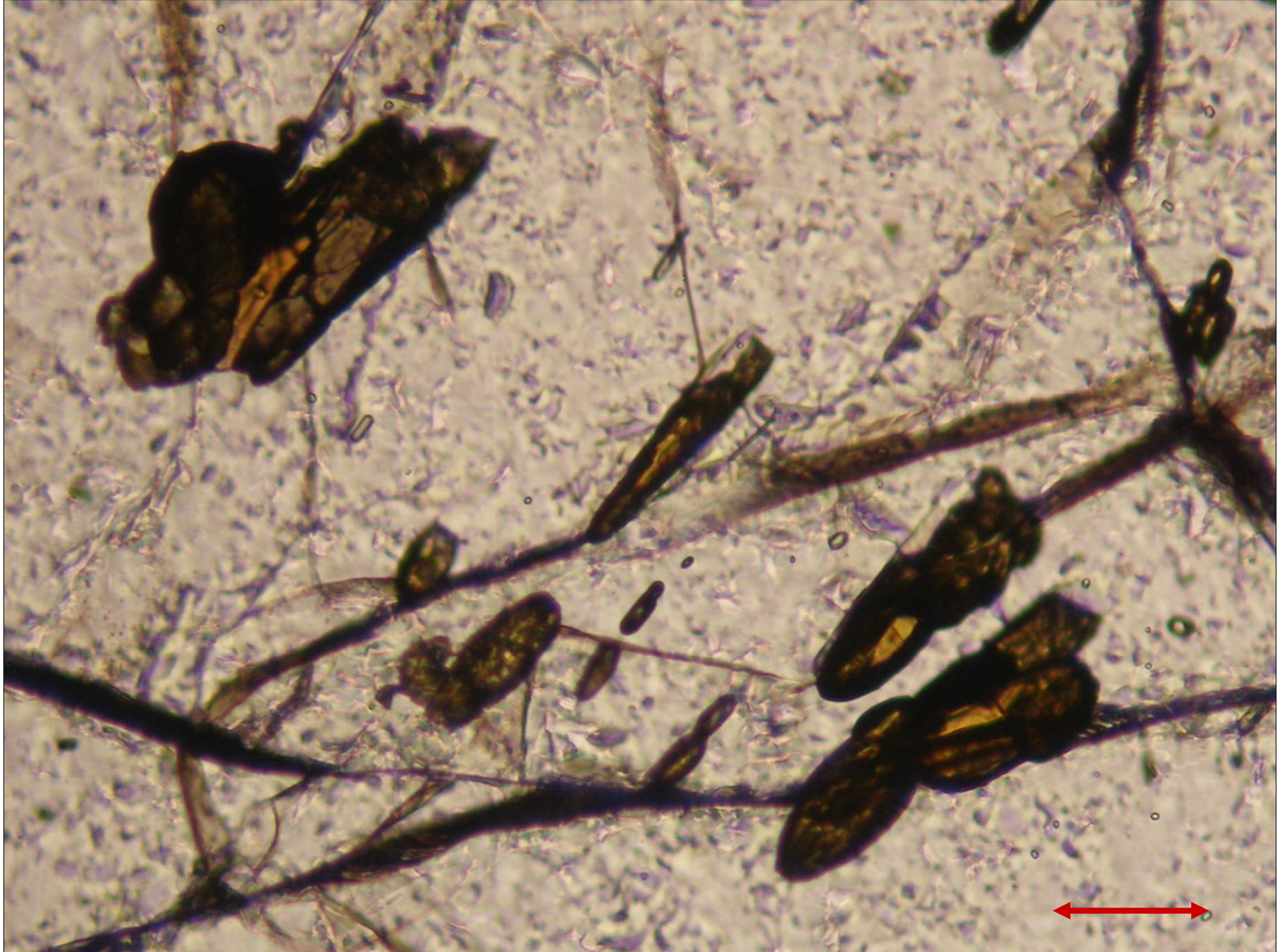
Sign of elongation: positive

Alteration: may be altered to titanite or leucoxene

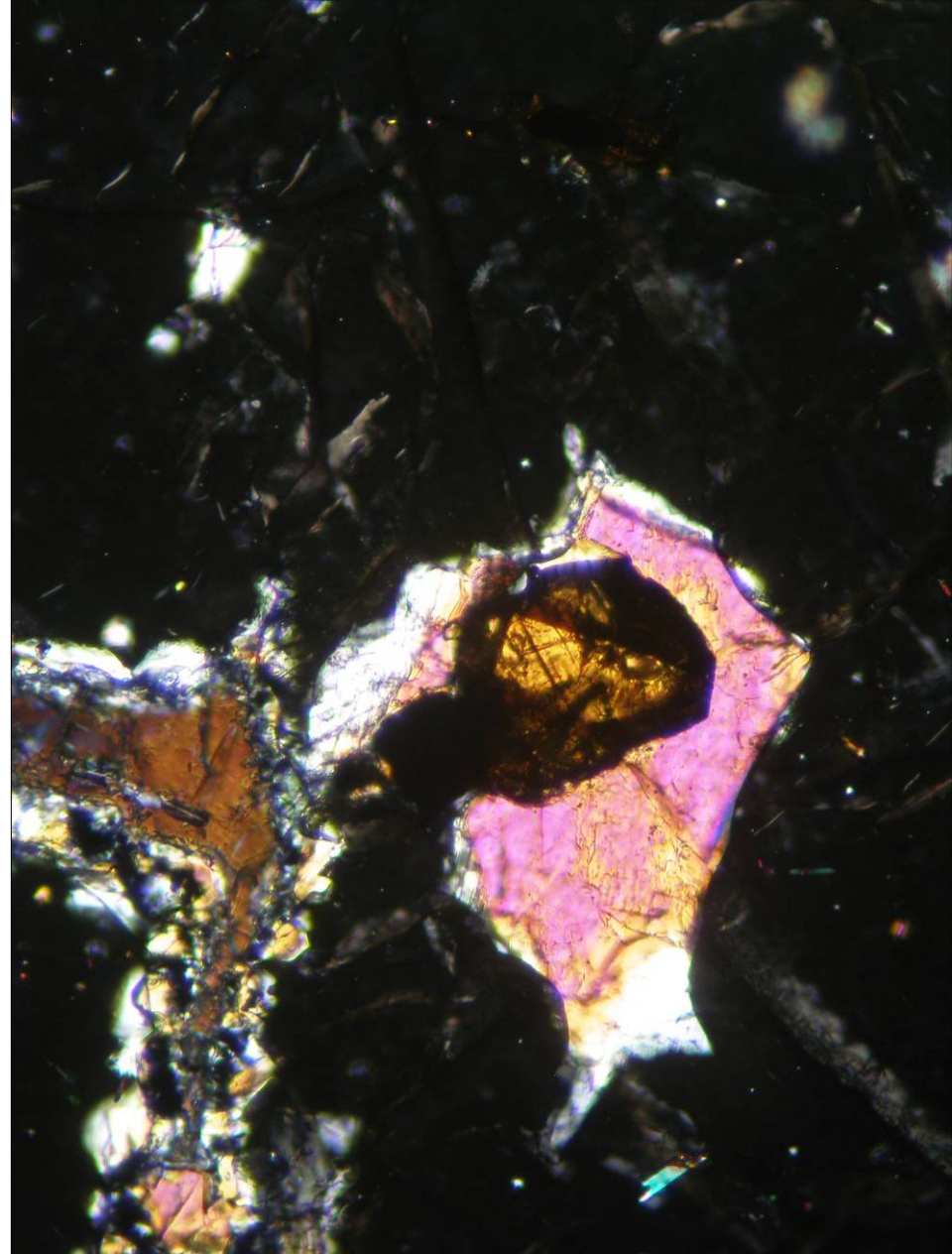
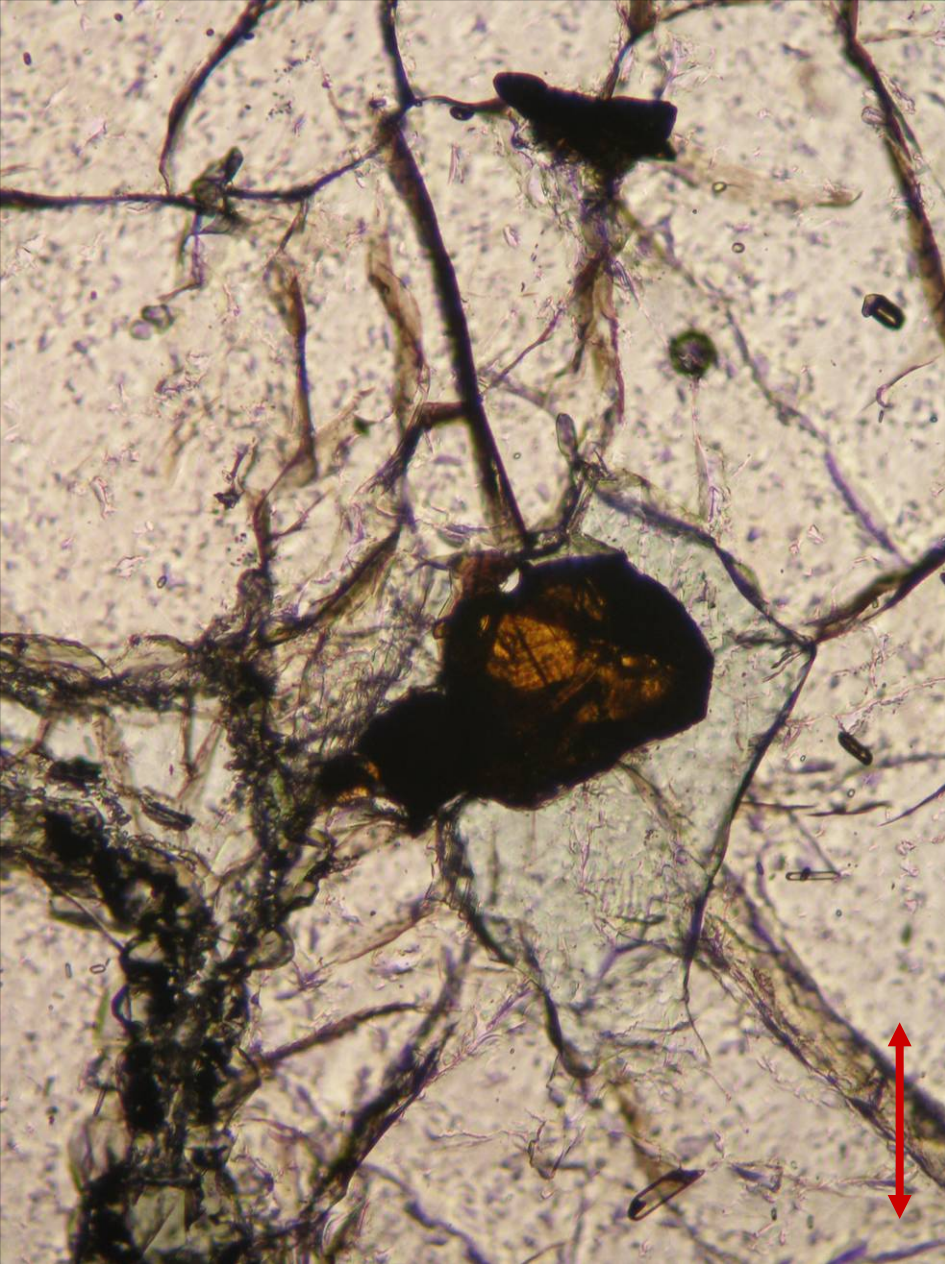
Occurrence: accessory mineral in many igneous and metamorphic rocks

Similar minerals in thin sections: titanite (lower indices of refraction)

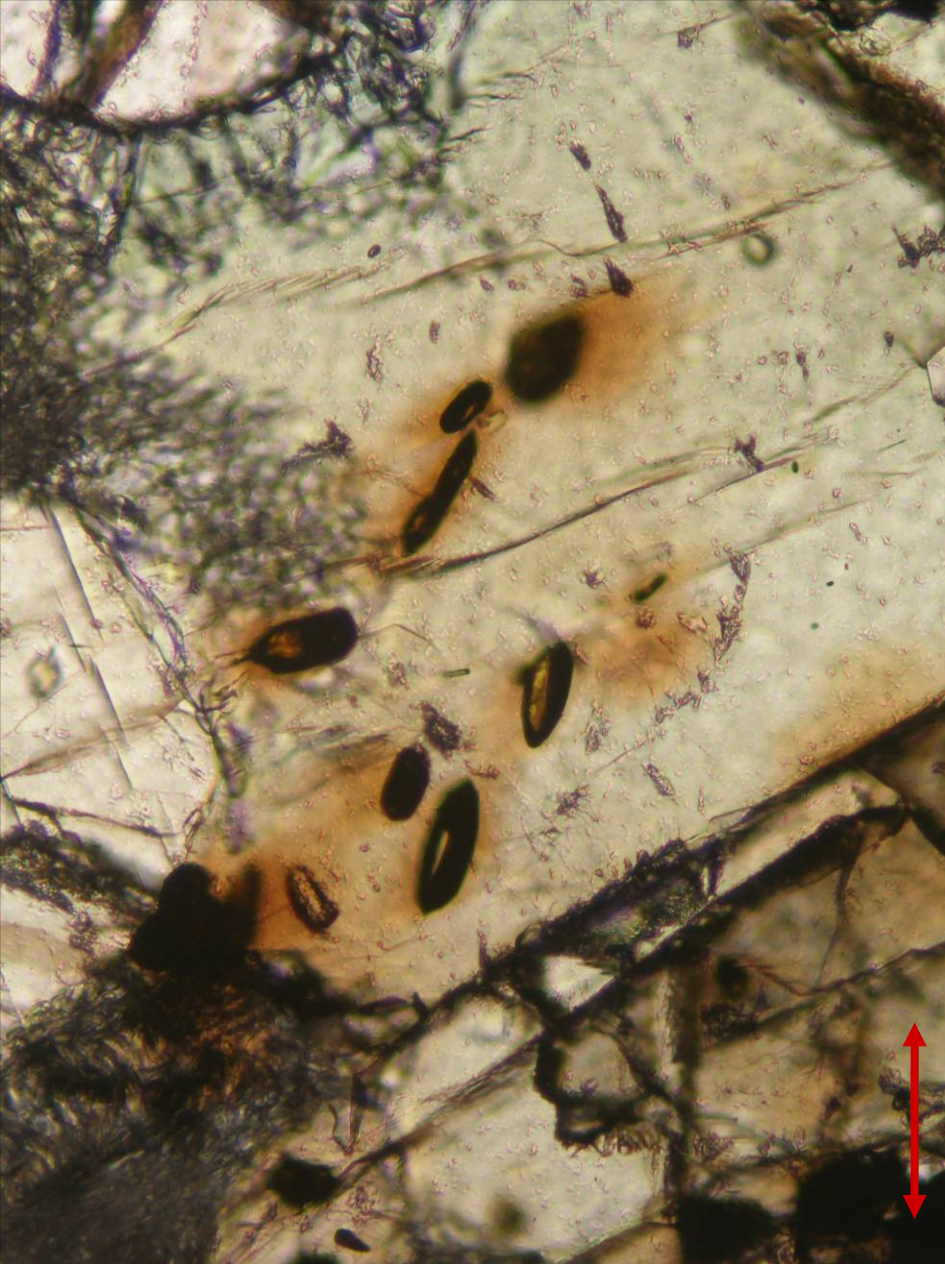
Note: acicular or hair like rutile is called sagenite



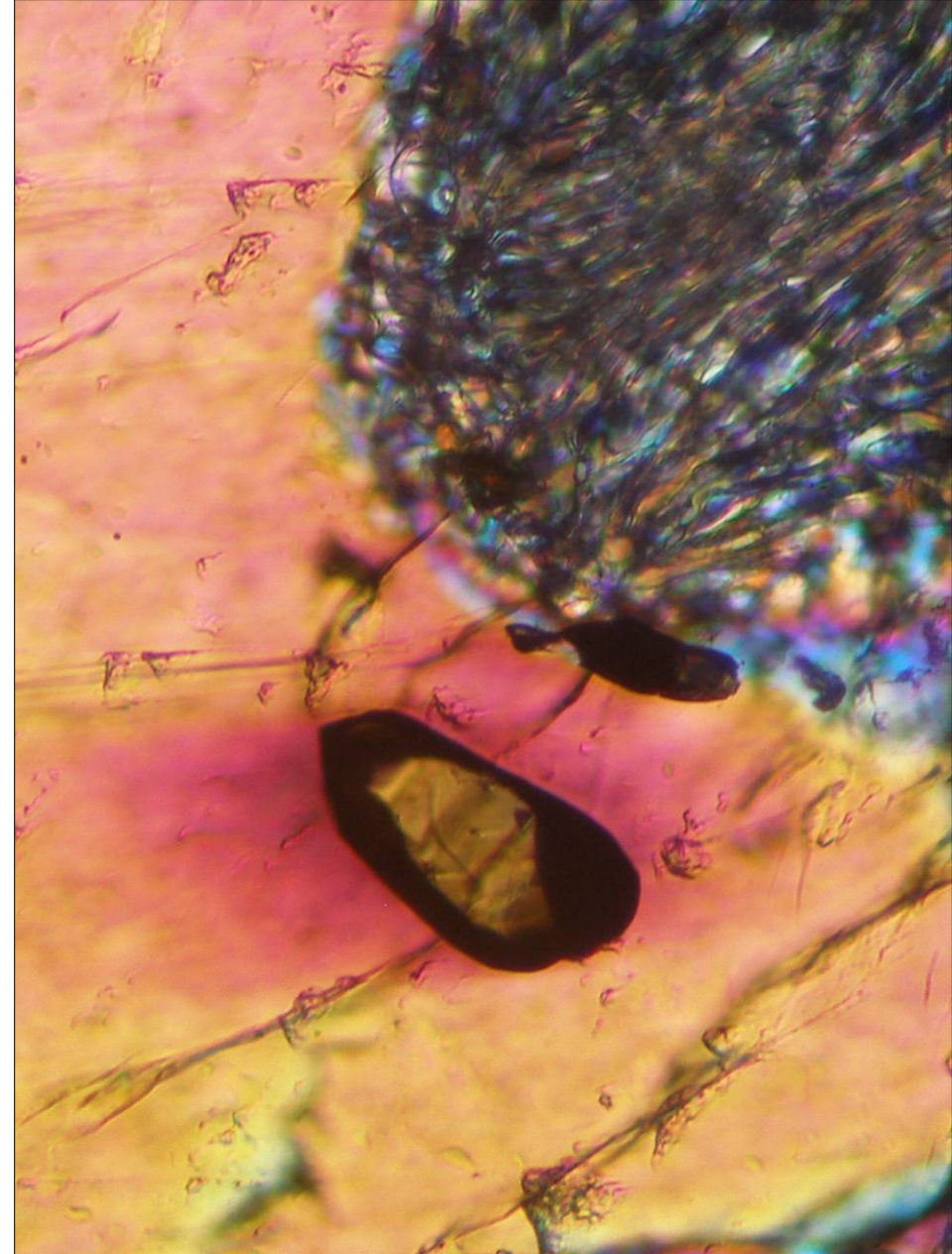
Garnet with rutile inclusions in eclogite from Borek, the Czech Republic; PPL. Field of view is ca. 0.4 mm wide. Photo: JiZi.



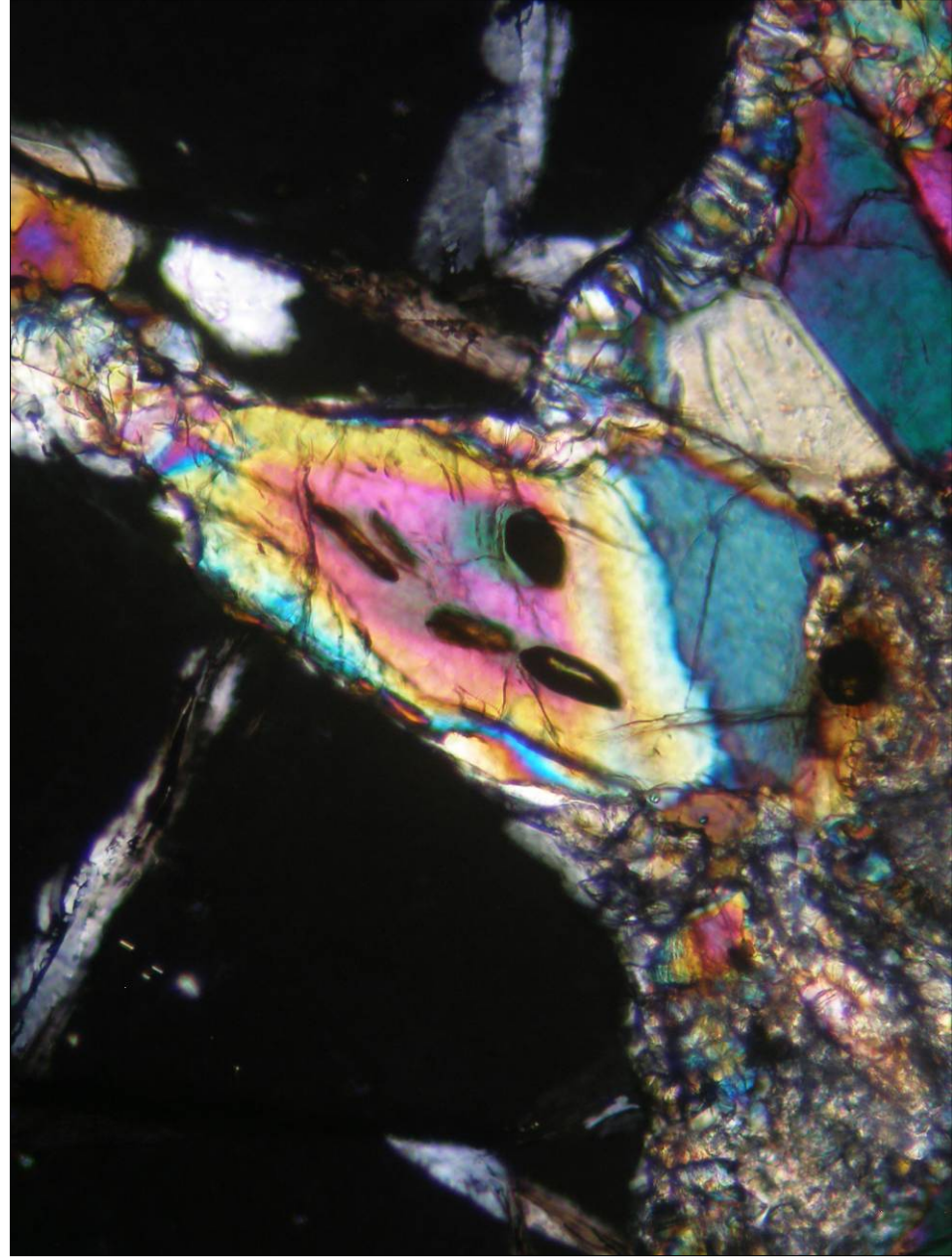
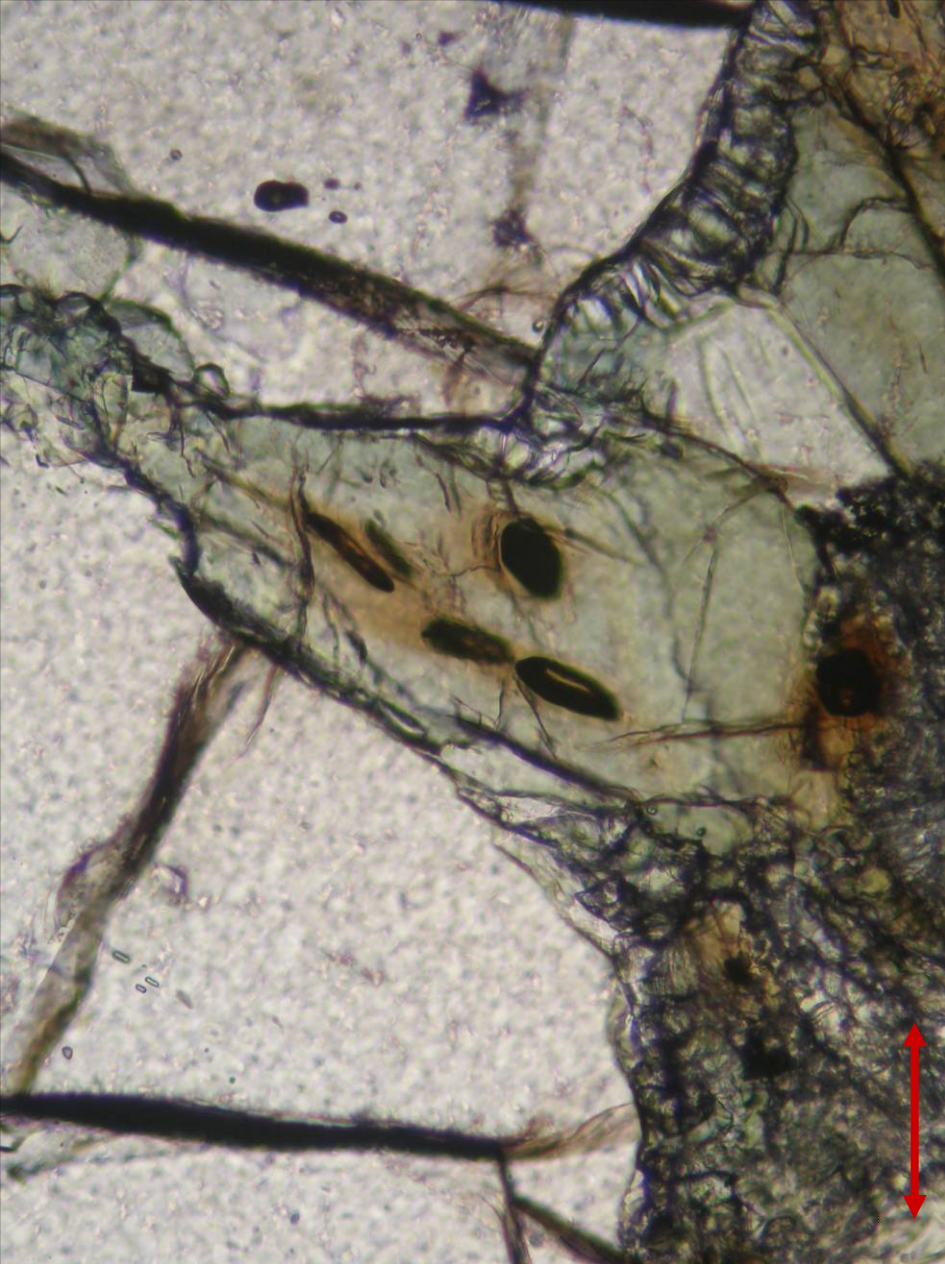
Rutile in eclogite from Borek, the Czech Republic; PPL (left) and XPL (right). Width of fields of view is ca. 0.7 mm. Photo: JiZi.



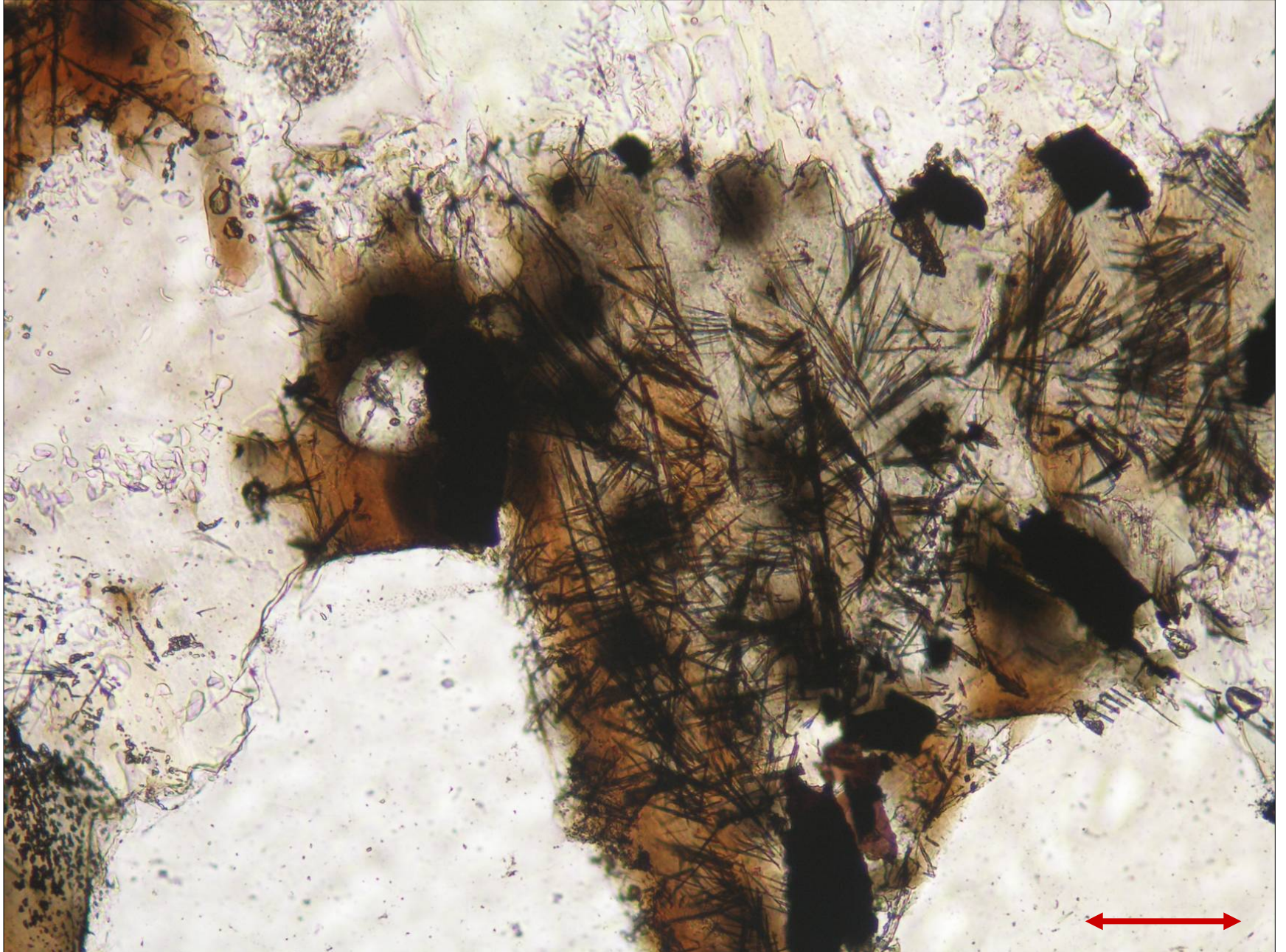
Rutile inclusions in clinopyroxene (omphacite) in eclogite from Borek, the Czech Republic; PPL (left) and XPL (right). Width of fields of view is ca. 0.7 mm. Photo: JiZi.



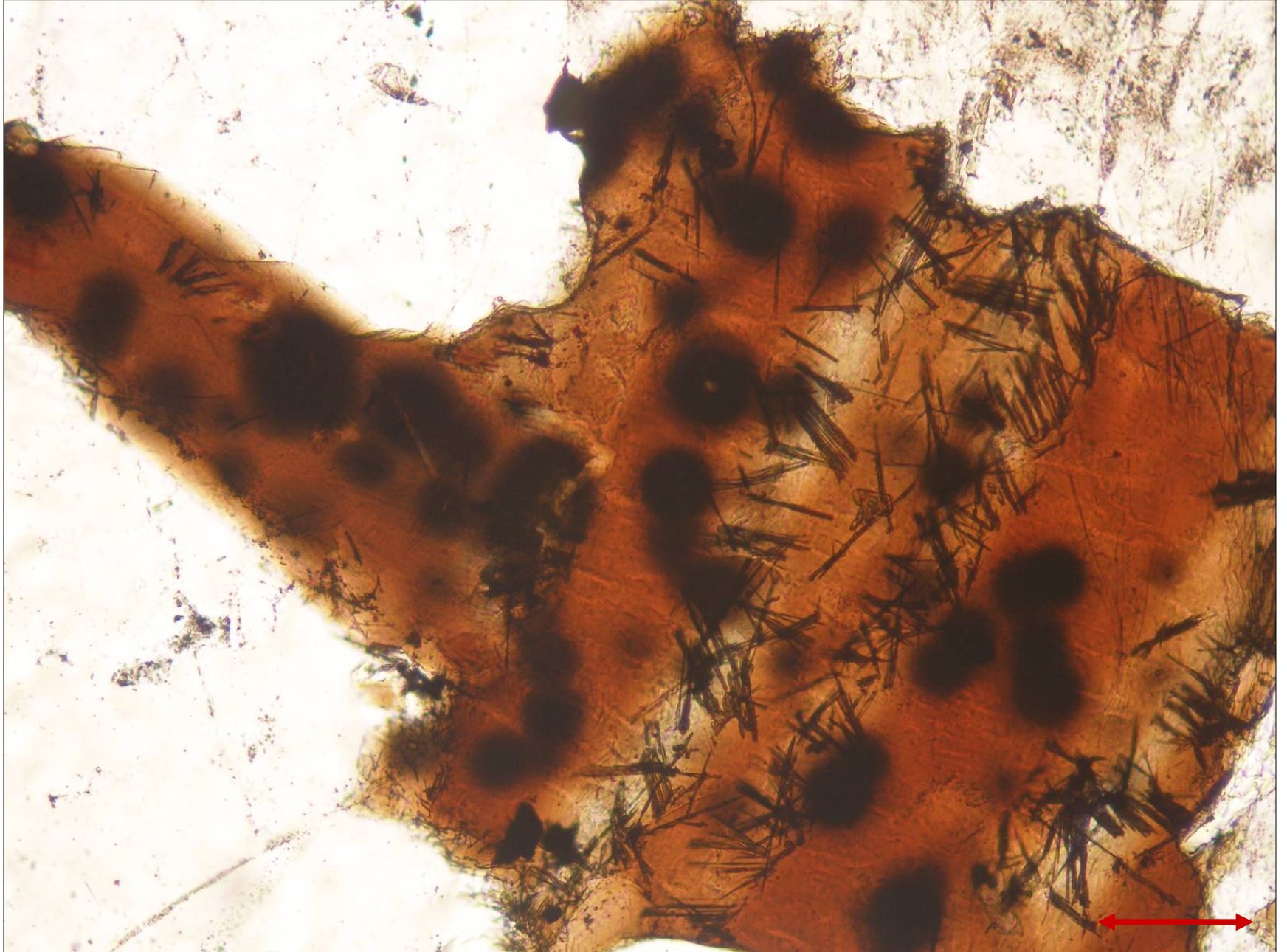
Rutile inclusions in clinopyroxene (omphacite) in eclogite from Borek, the Czech Republic; PPL (left) and XPL (right). Width of fields of view ca is. 0.3 mm. Photo: JiZi.



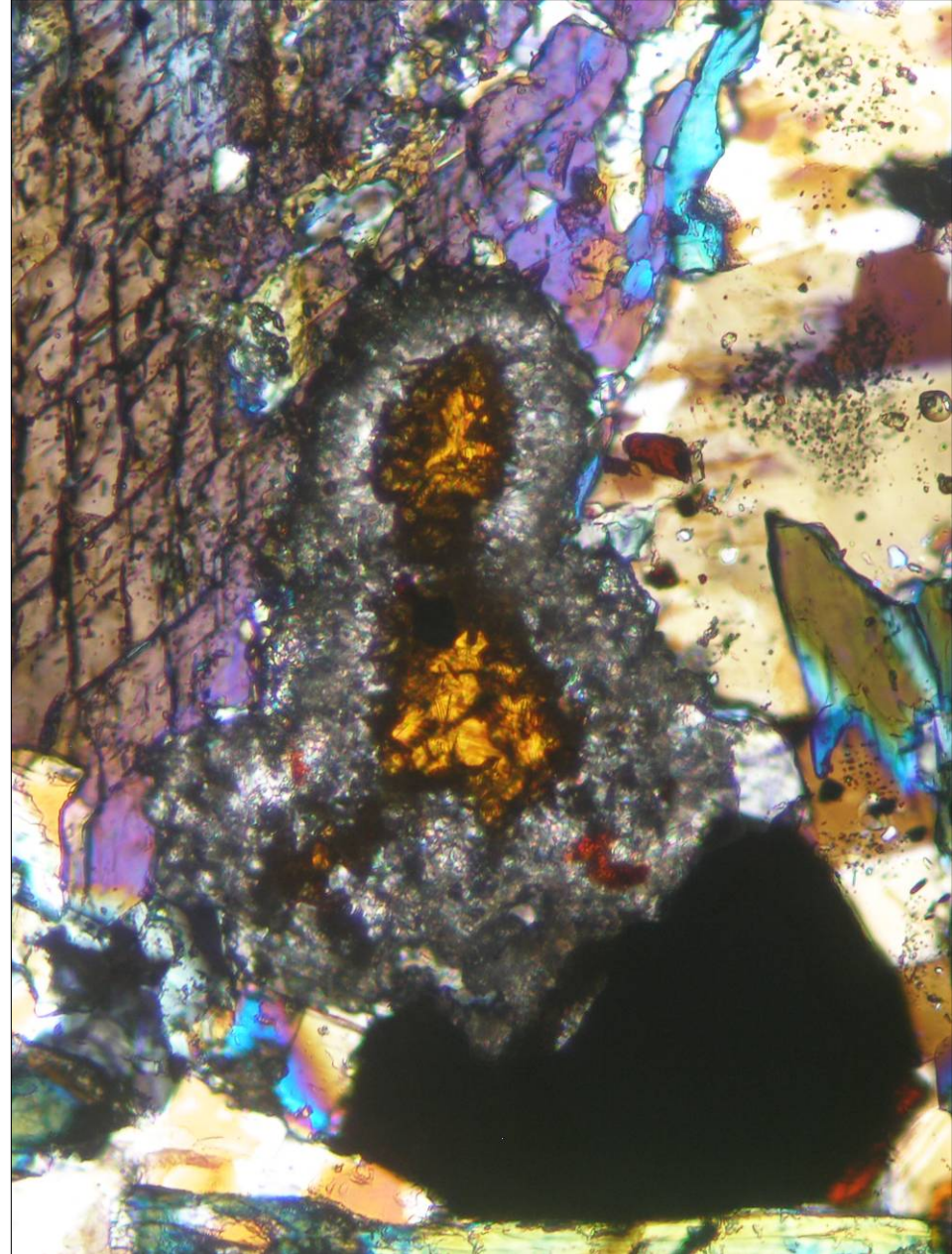
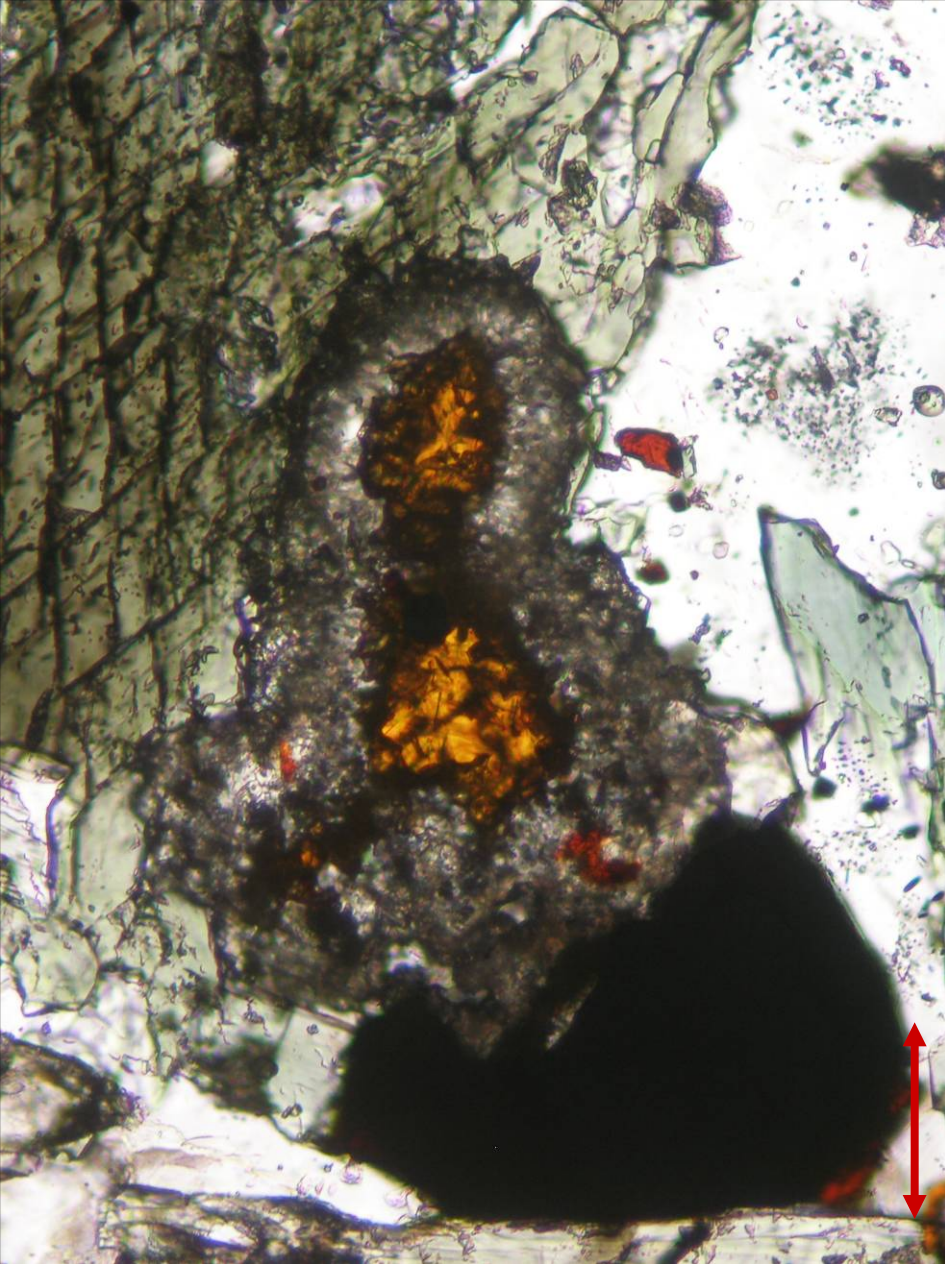
Rutile inclusions in clinopyroxene (omphacite) in eclogite from Borek, the Czech Republic; PPL (left) and XPL (right). Width of fields of view is ca. 0.7 mm. Photo: JiZi.



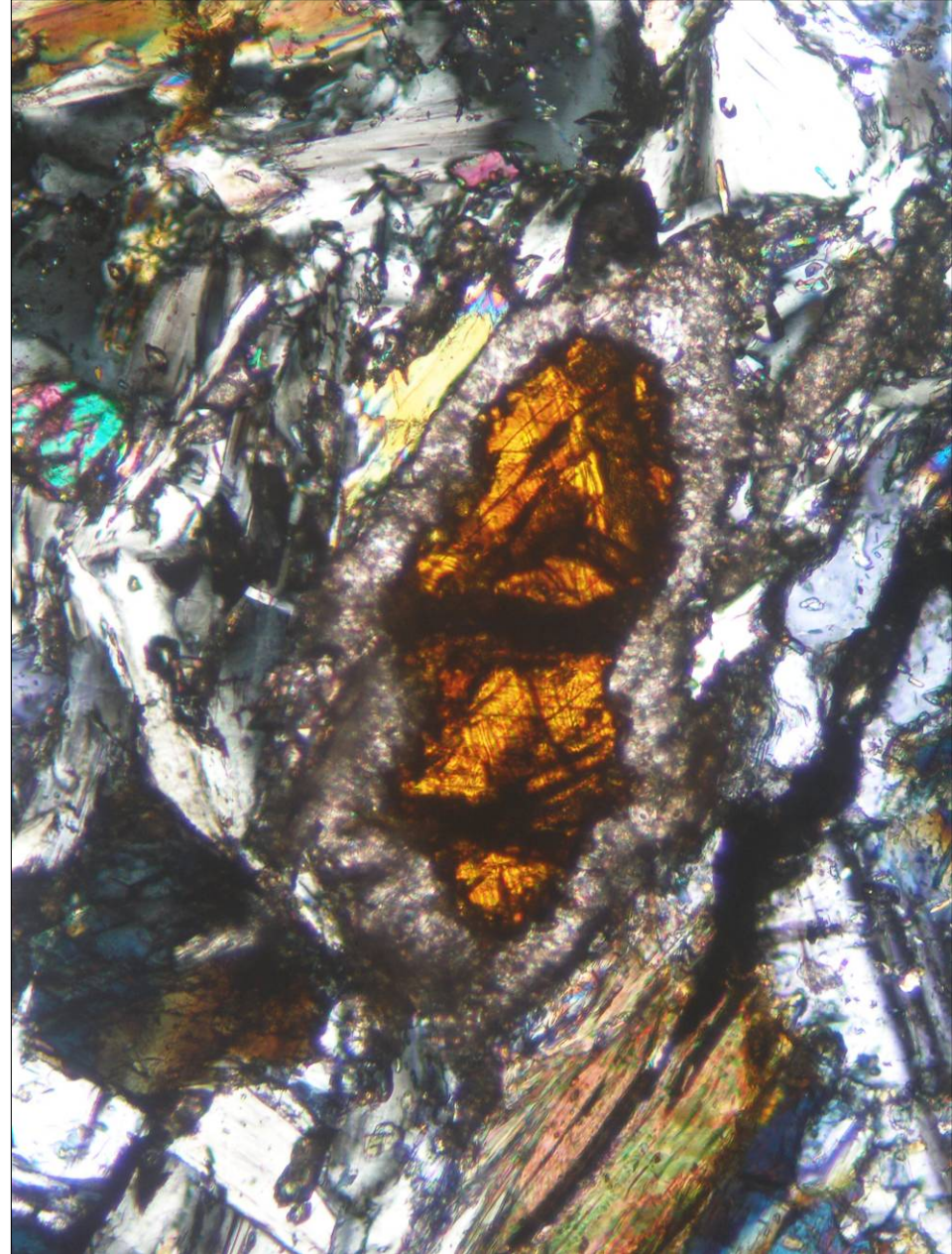
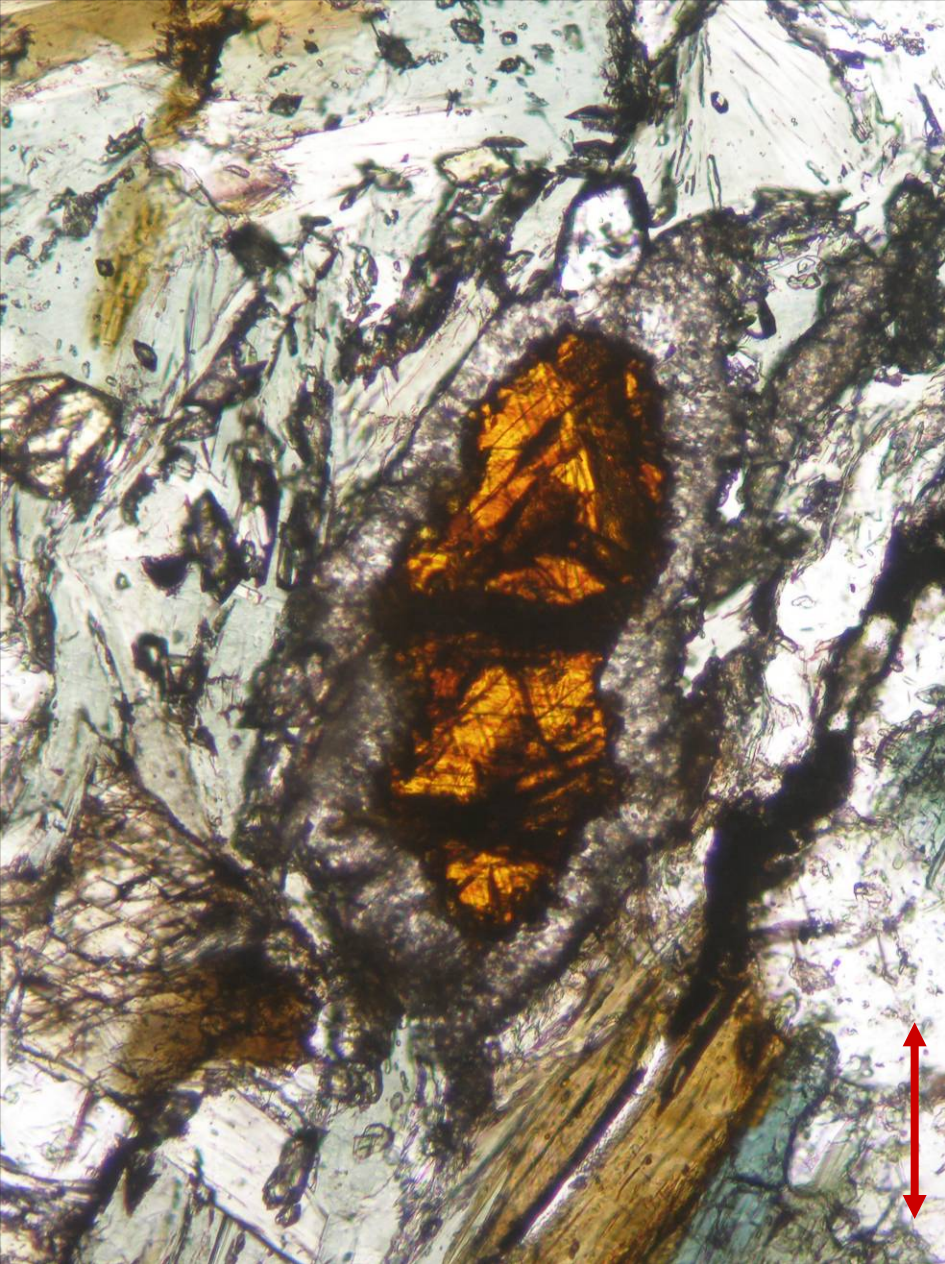
Biotite with inclusions of sagenite in granite from Mrákotín, the Czech Republic; PPL. Field of view is 0.8 mm wide. Photo: JiZi.



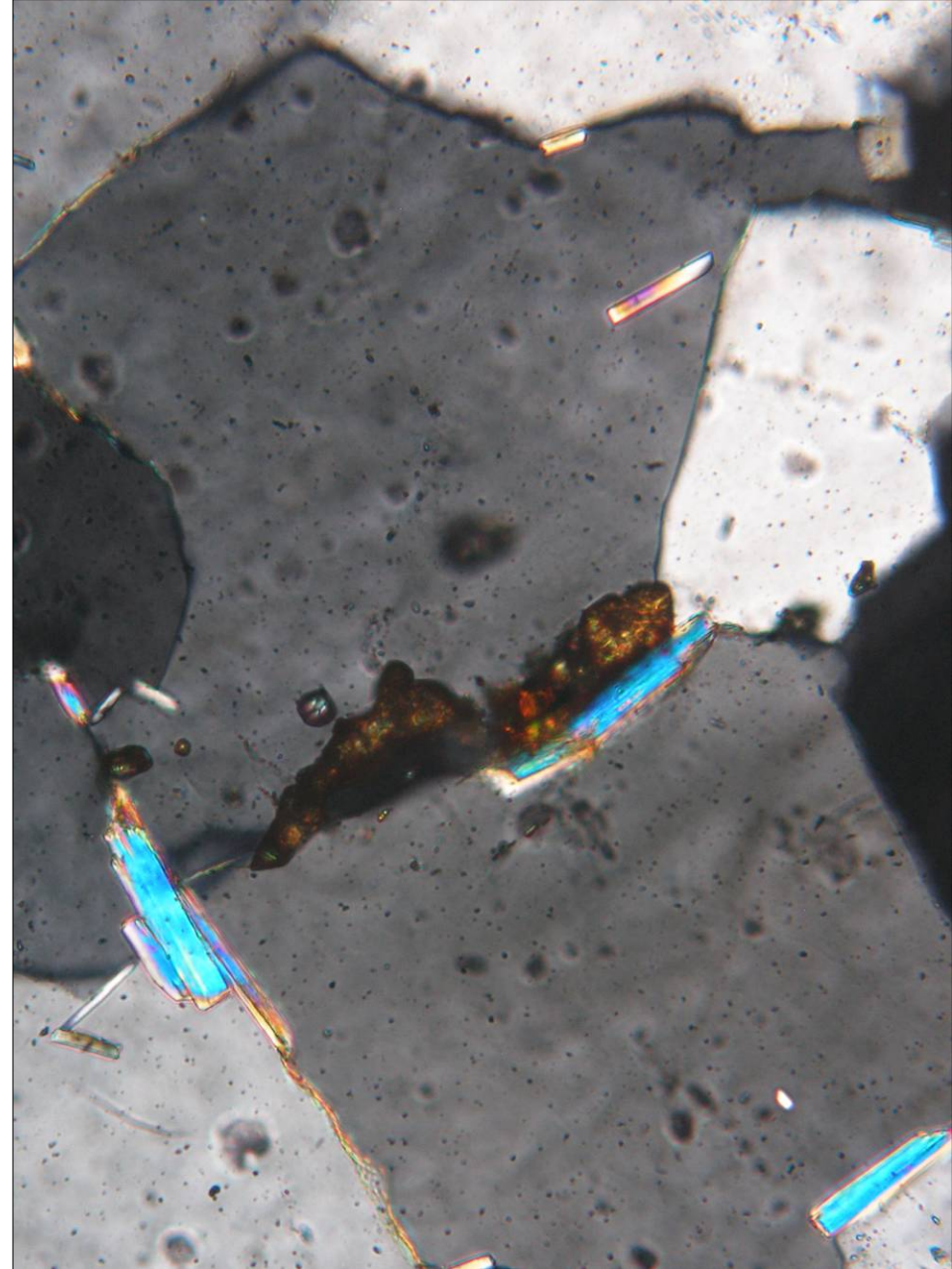
Biotite with pleochroic halos and inclusions of sagenite in granite from Mrákotín, the Czech Republic; PPL. Field of view is 0.8 mm wide. Photo: JiZi.



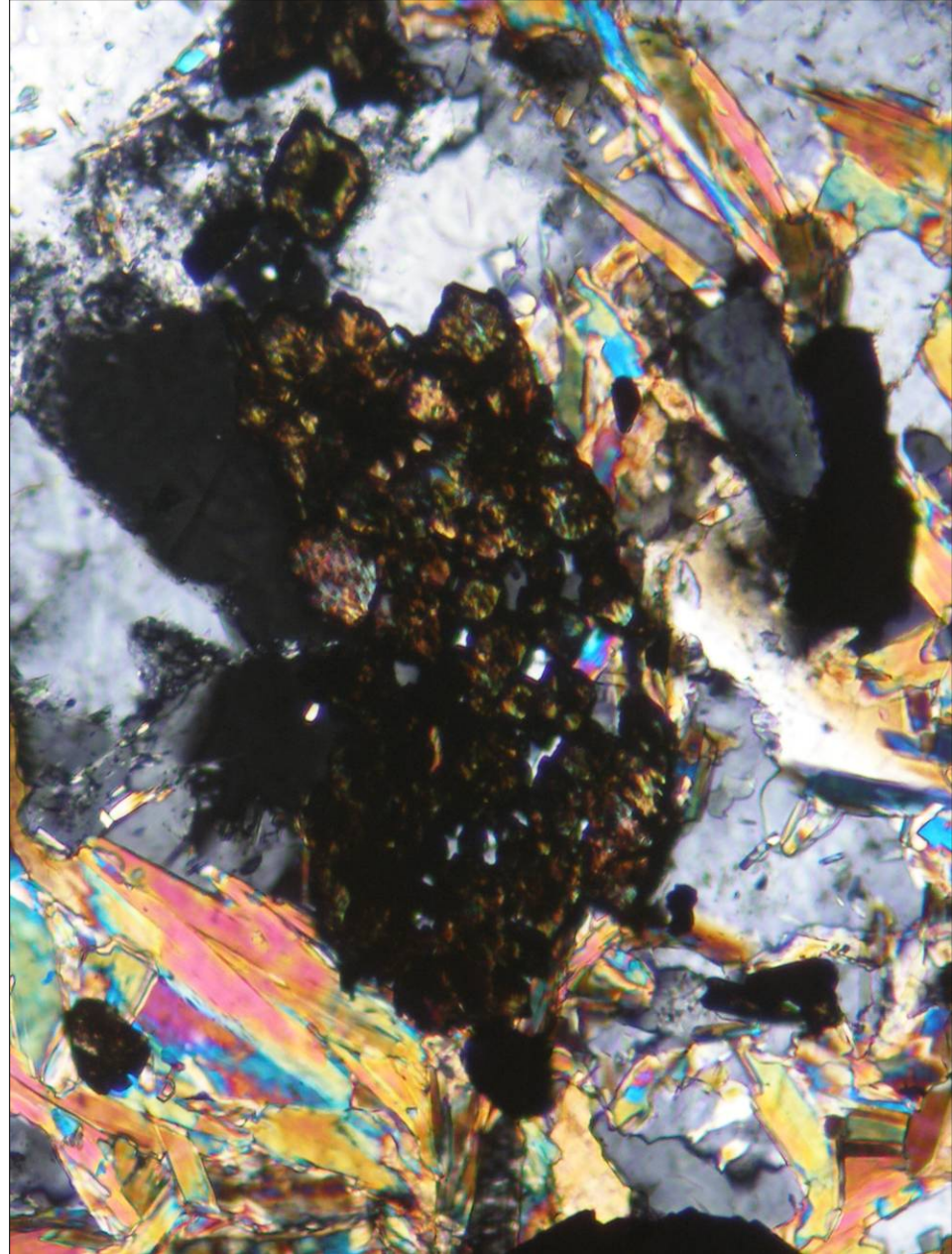
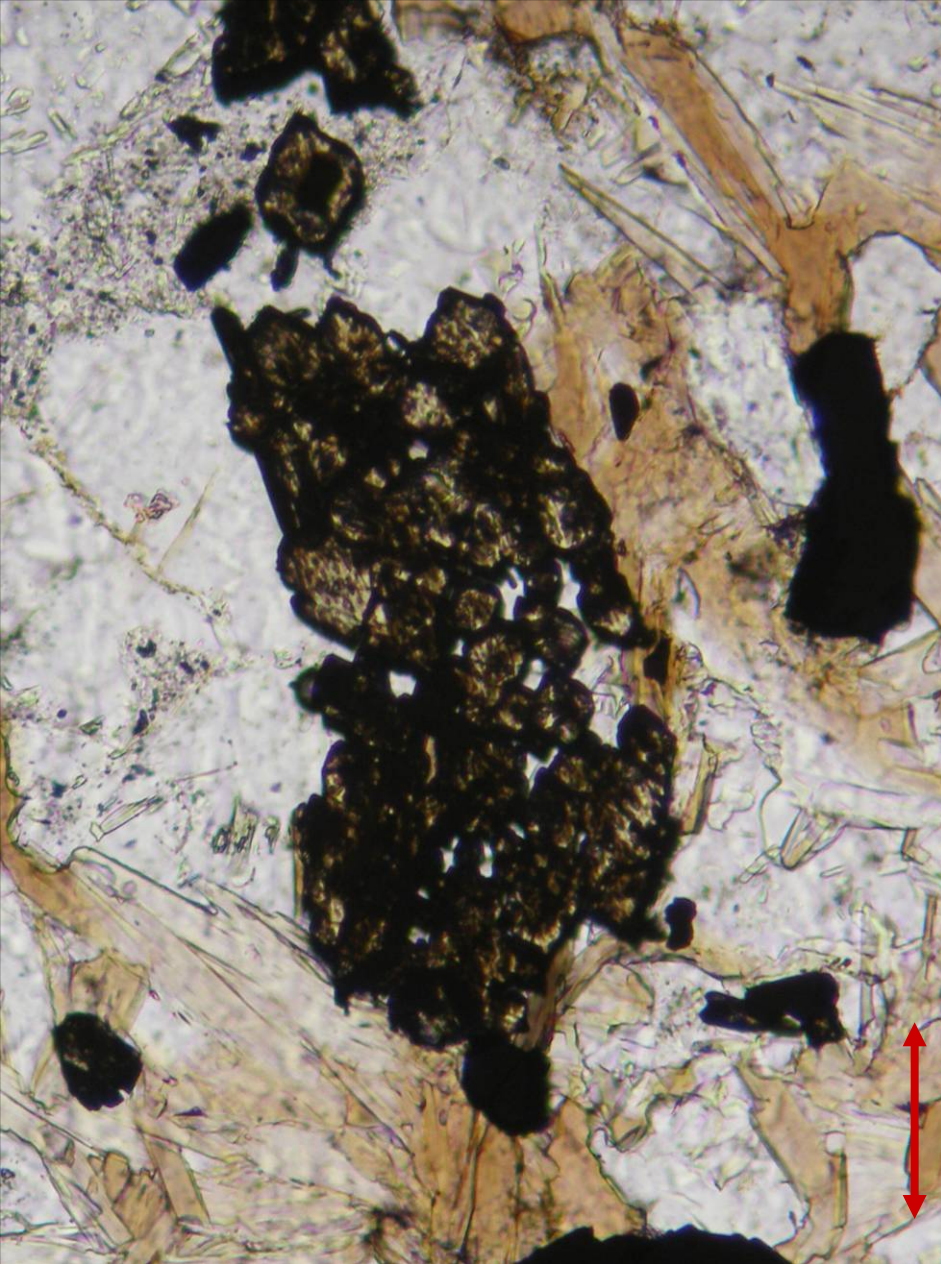
Rutile rimmed with titanite in amphibolite from Rejhotice, the Czech Republic; PPL (left) and XPL (right). Width of fields of view is ca. 0.5 mm. Photo: JiZi.



Rutile rimmed with titanite in amphibolite from Rejhotice, the Czech Republic; PPL (left) and XPL (right). Width of fields of view is ca. 0.7 mm. Photo: JiZi.



Rutile in quartzite from Petrov nad Desnou, the Czech Republic; PPL (left) and XPL (right). Width of fields of view is ca. 0.3 mm. Photo: JiZi.



Rutile in orthogneiss from Vidly, the Czech Republic; PPL (left) and XPL (right). Width of fields of view is ca. 0.3 mm. Photo: JiZi.