PLAGIOCLASE

Chemical formula: $Na[AlSi_3O_8]$ - $Ca[Al_2Si_2O_8]$

Crystal system: triclinic

Color in thin section: colorless

Form: tabular crystals, idiomorphic to allotriomorphic grains; polysynthetic twinning is characteristic (but it may be absent in metamorphic rocks!); chemical (and optical) zoning is common

Cleavage: perfect on {001}, good on {010}

Indices of refraction: $n_\alpha = 1.527\ (An_{00}) – 1.577\ (An_{100})$

$n_\beta = 1.531\ (An_{00}) – 1.585\ (An_{100})$

$n_\gamma = 1.534\ (An_{00}) – 1.590\ (An_{100})$

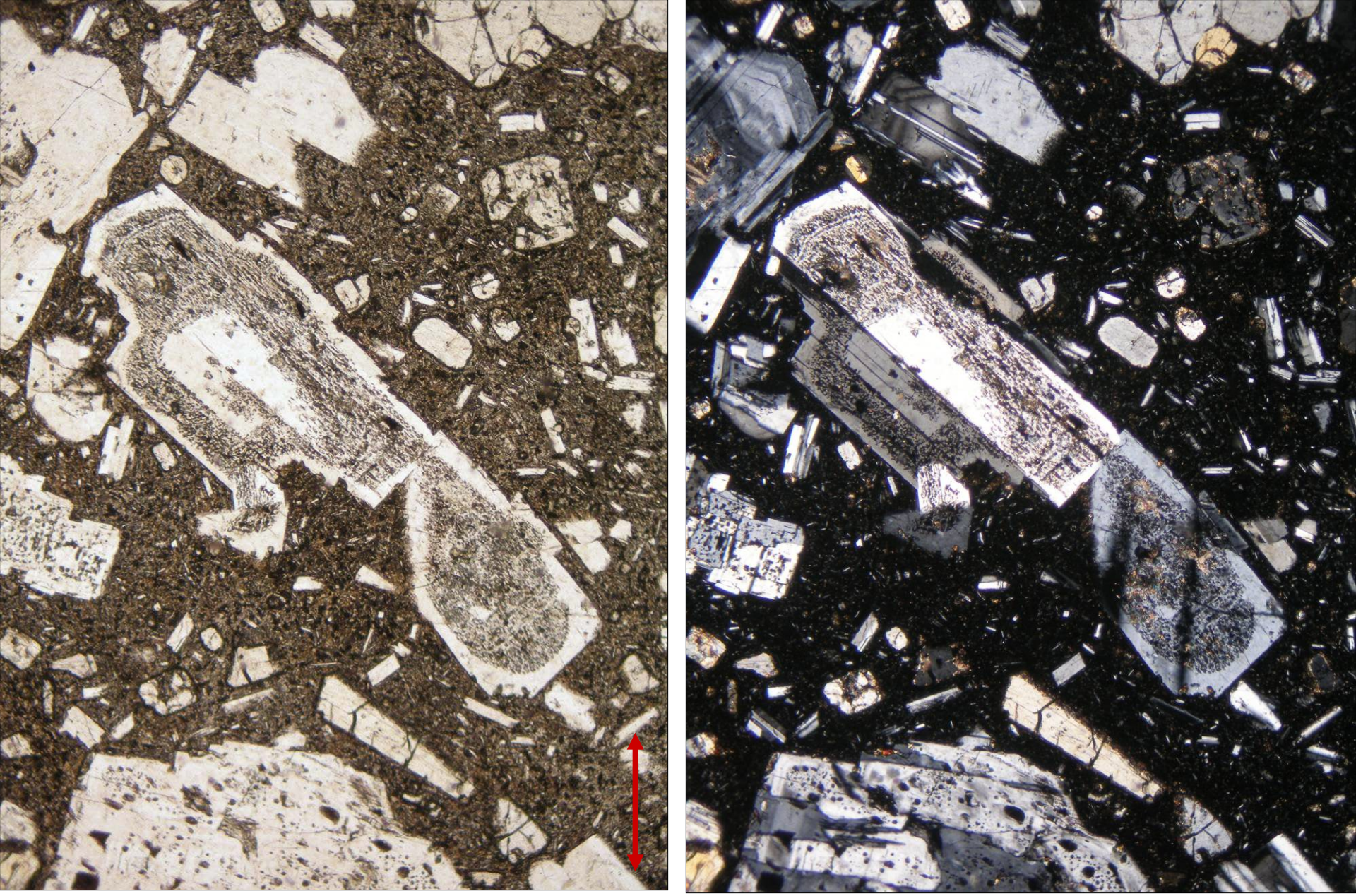
Birefringence: 0.007 – 0.013

Optic sign: biaxial positive or negative

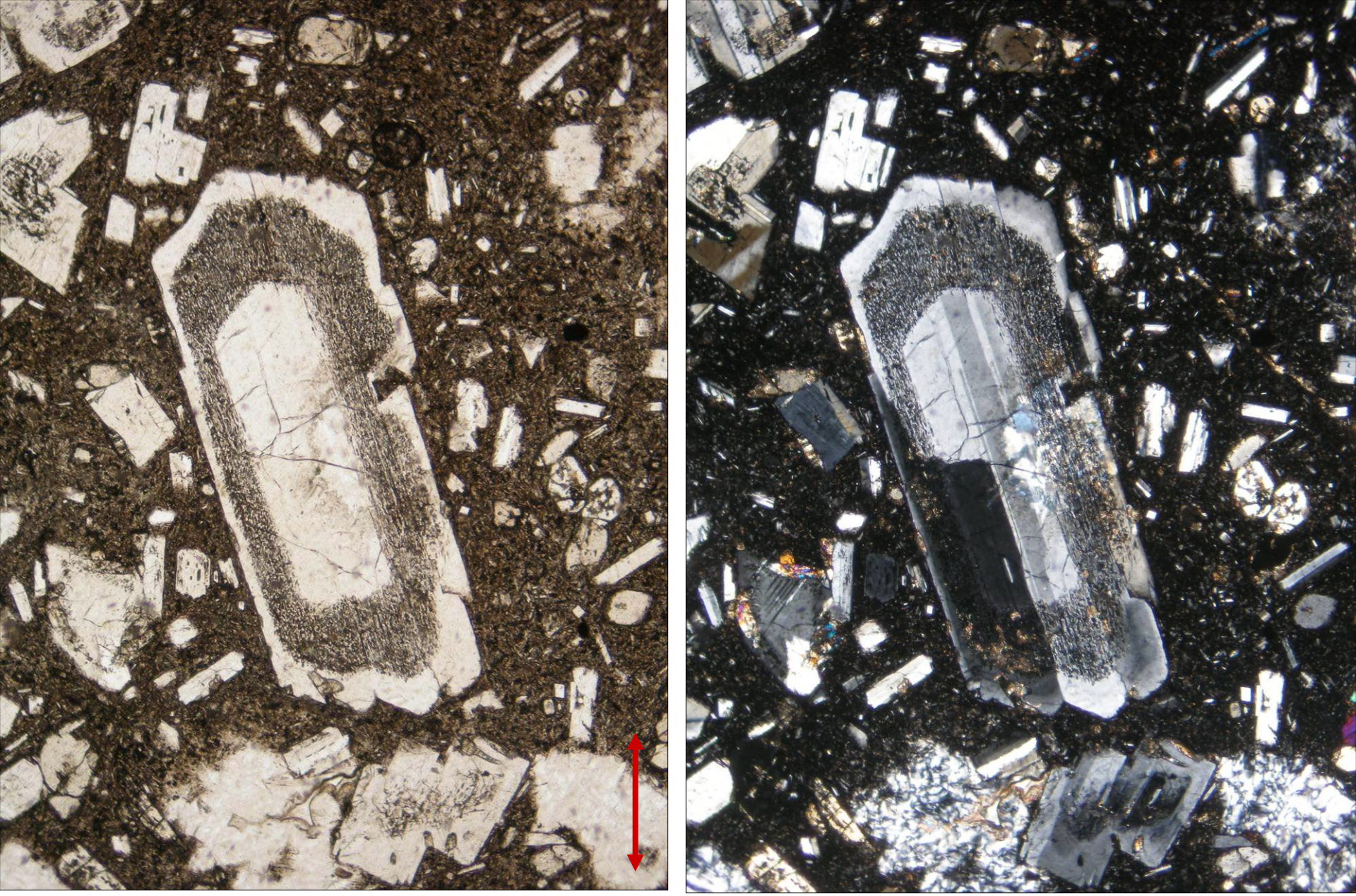
Alteration: commonly partially altered to fine-grained muscovite (sericitization) or kaolinite; also may alter to saussurite (fine-grained aggregate of epidote, clinozoisite, albite, and sericite) or to prehnite, zeolite minerals or scapolite

Occurrence: in nearly all magmatites (granite, granodiorite, tonalite, diorite, gabbro, pegmatite, andesite, basalt…), metamorphic rocks (gneiss, amphibolite)

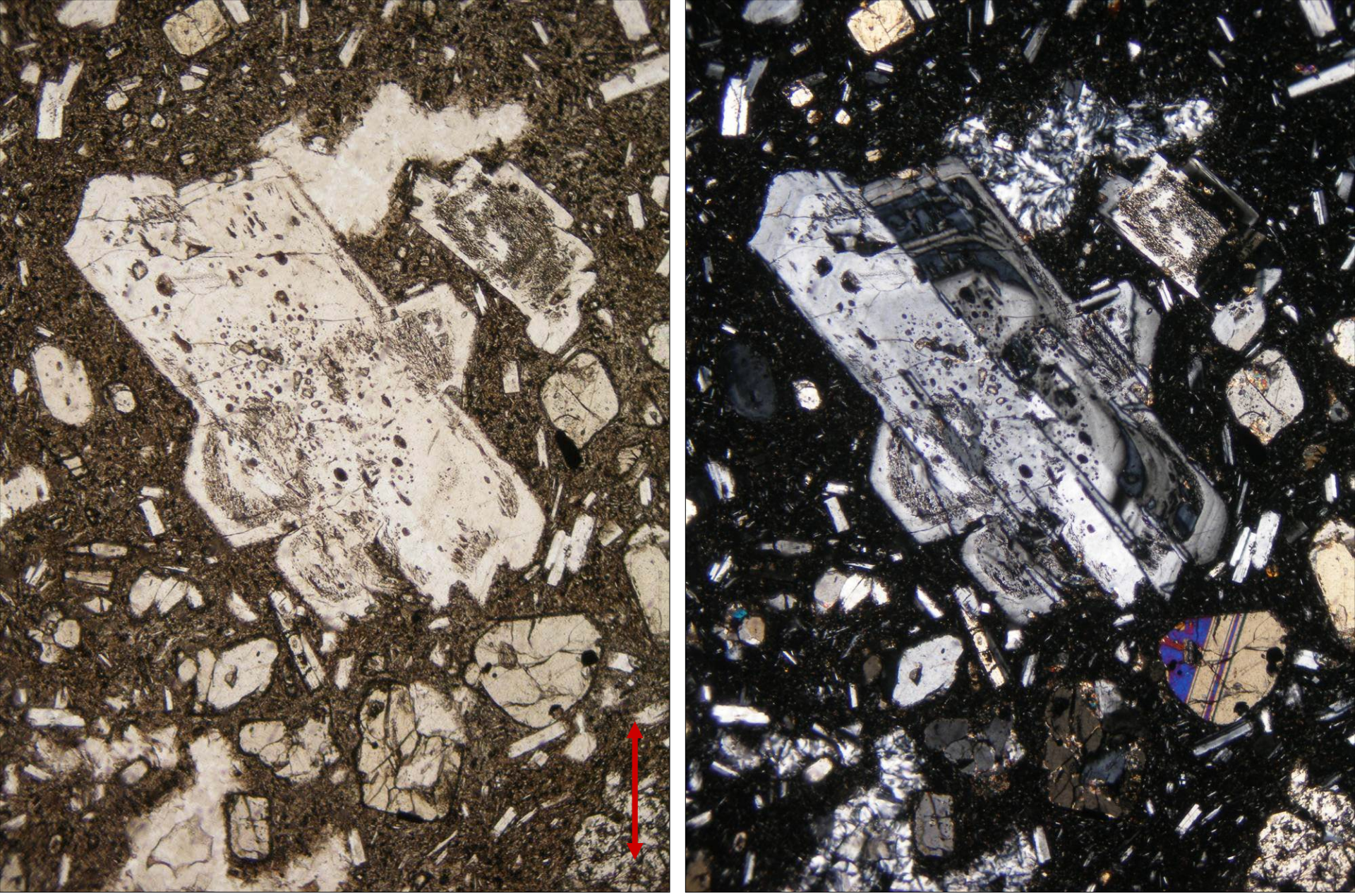
Similar minerals in thin sections: K-feldspars (lower indices of refraction, without twin lamellae), quartz (without cleavage, without alterations, uniaxial)



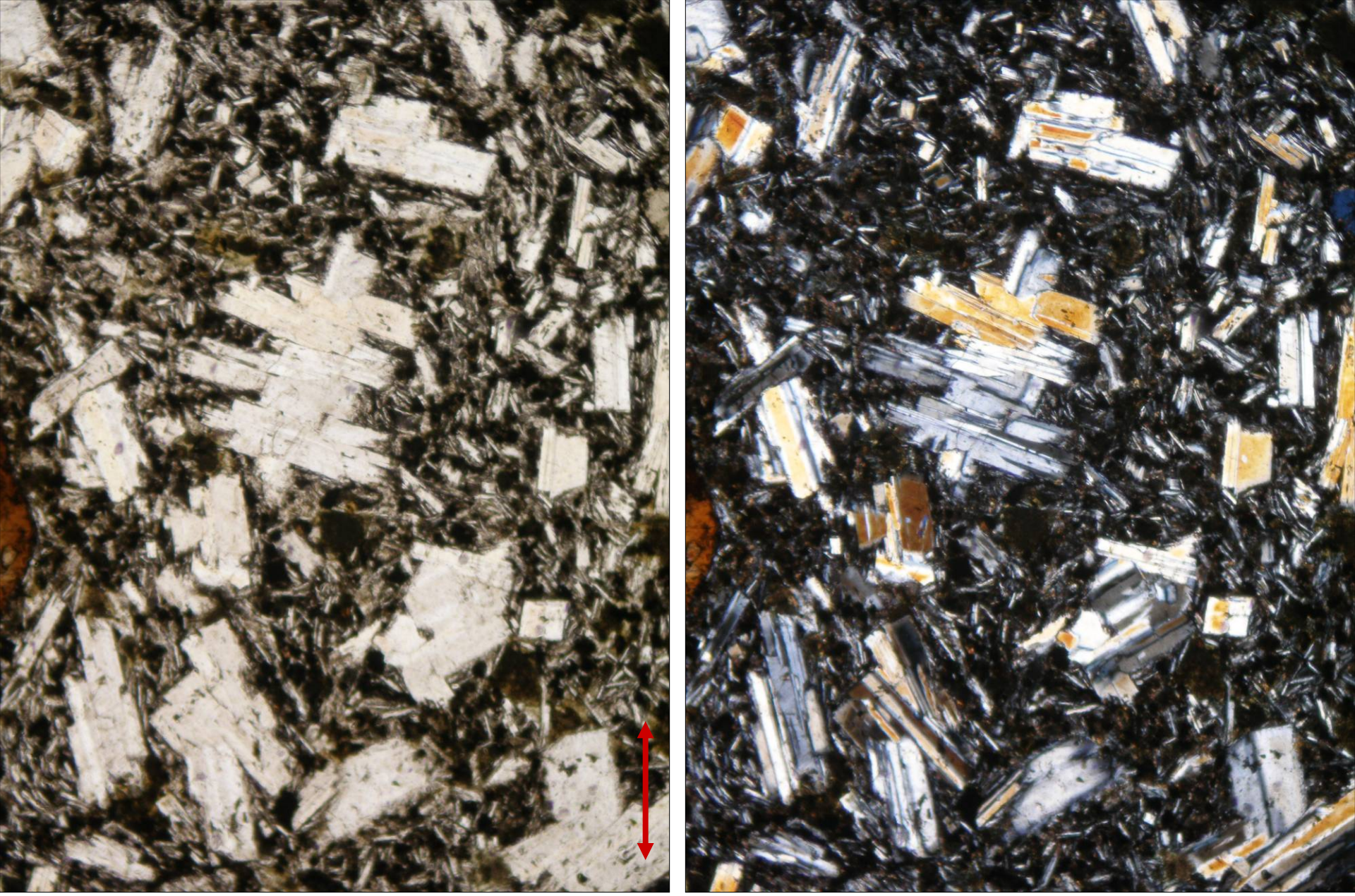
Plagioclase phenocrysts (with a sieve texture) in basalt or basaltic trachyandesite from Byšta, Slovakia; PPL (left) and XPL (right). Width of fields of view is ca. 2.0 mm. Photo: JiZi.



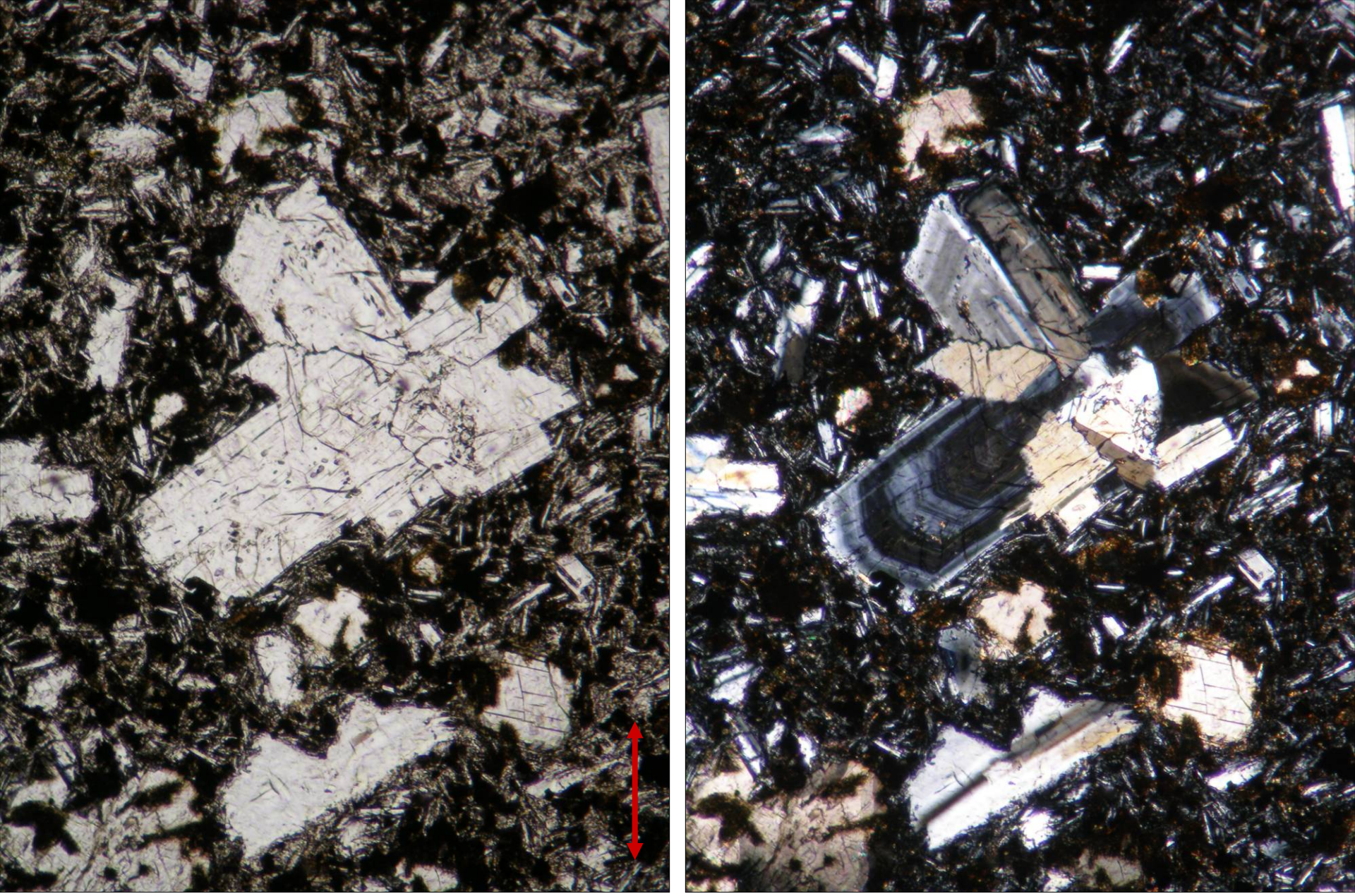
Plagioclase phenocryst (with a sieve texture) in basalt or basaltic trachyandesite from Byšta, Slovakia; PPL (left) and XPL (right). Width of fields of view is ca. 2.0 mm. Photo: JiZi.



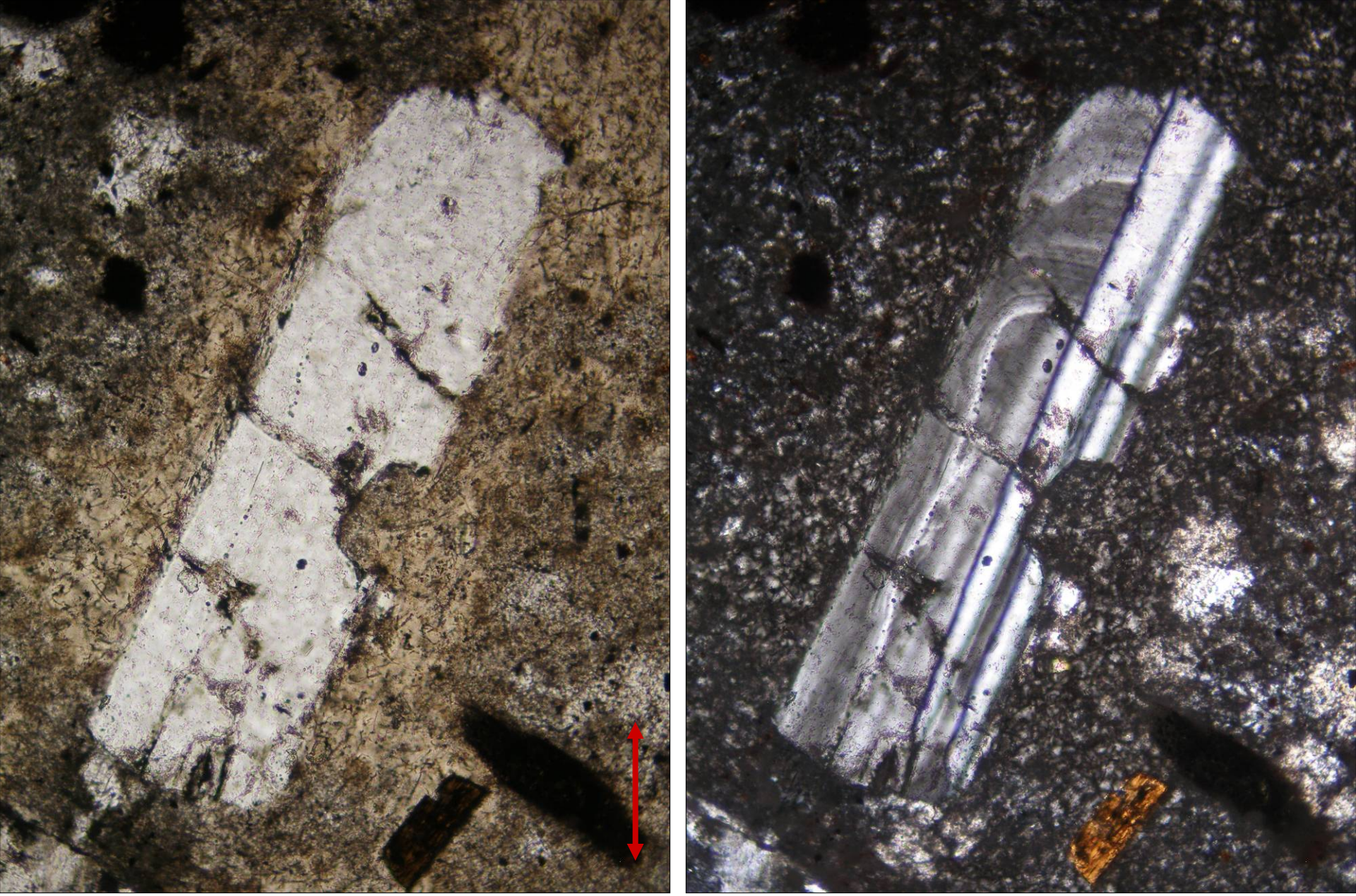
Phenocrysts of plagioclase and pyroxene in basalt, Byšta, Slovakia; PPL (left) and XPL (right). Width of fields of view is ca. 2.0 mm. Photo: JiZi.



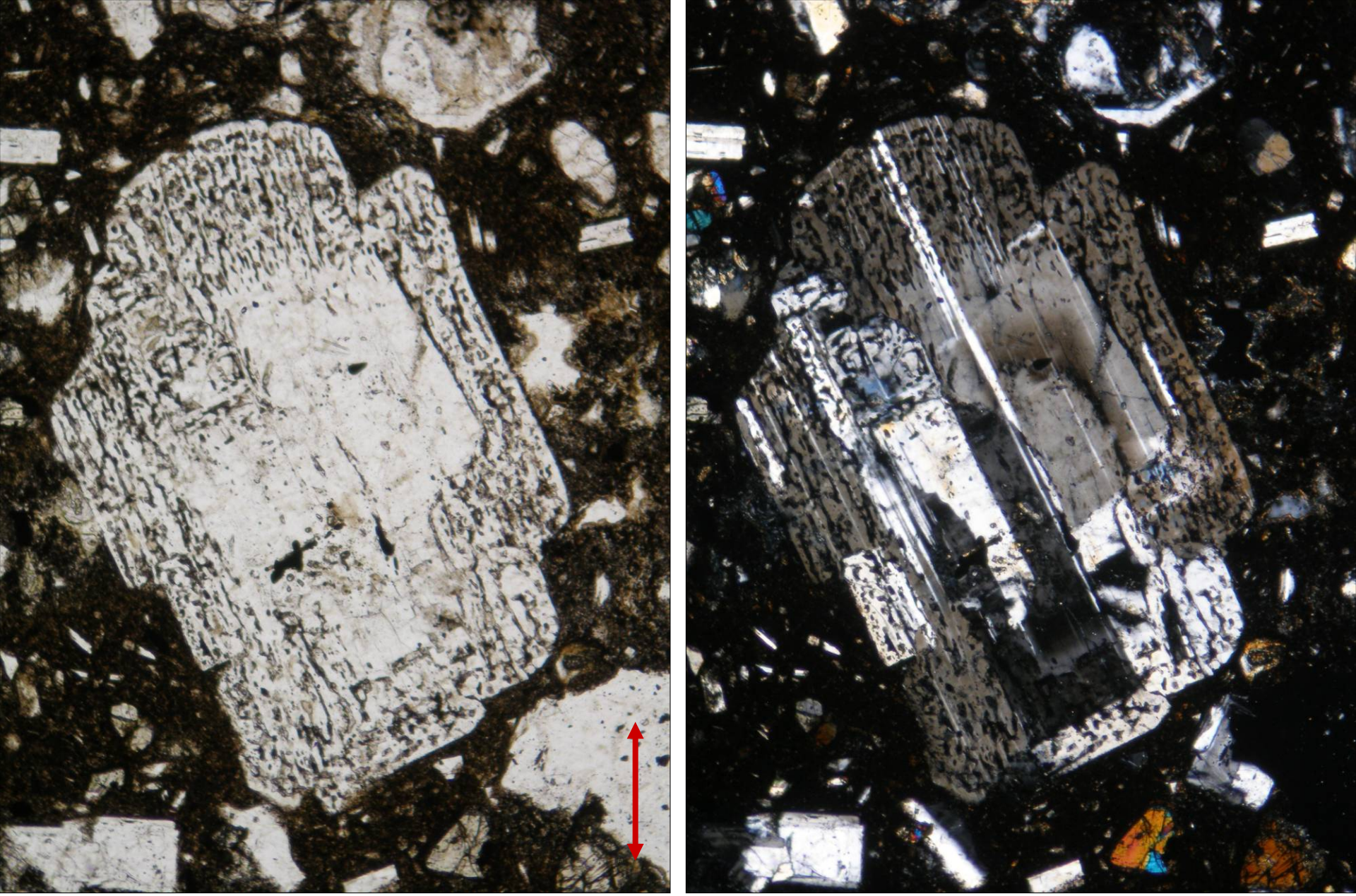
Plagioclase phenocrysts in andesite from Bánov, the Czech Republic; PPL (left) and XPL (right). Width of fields of view is ca. 1.5 mm. Photo: JiZi.



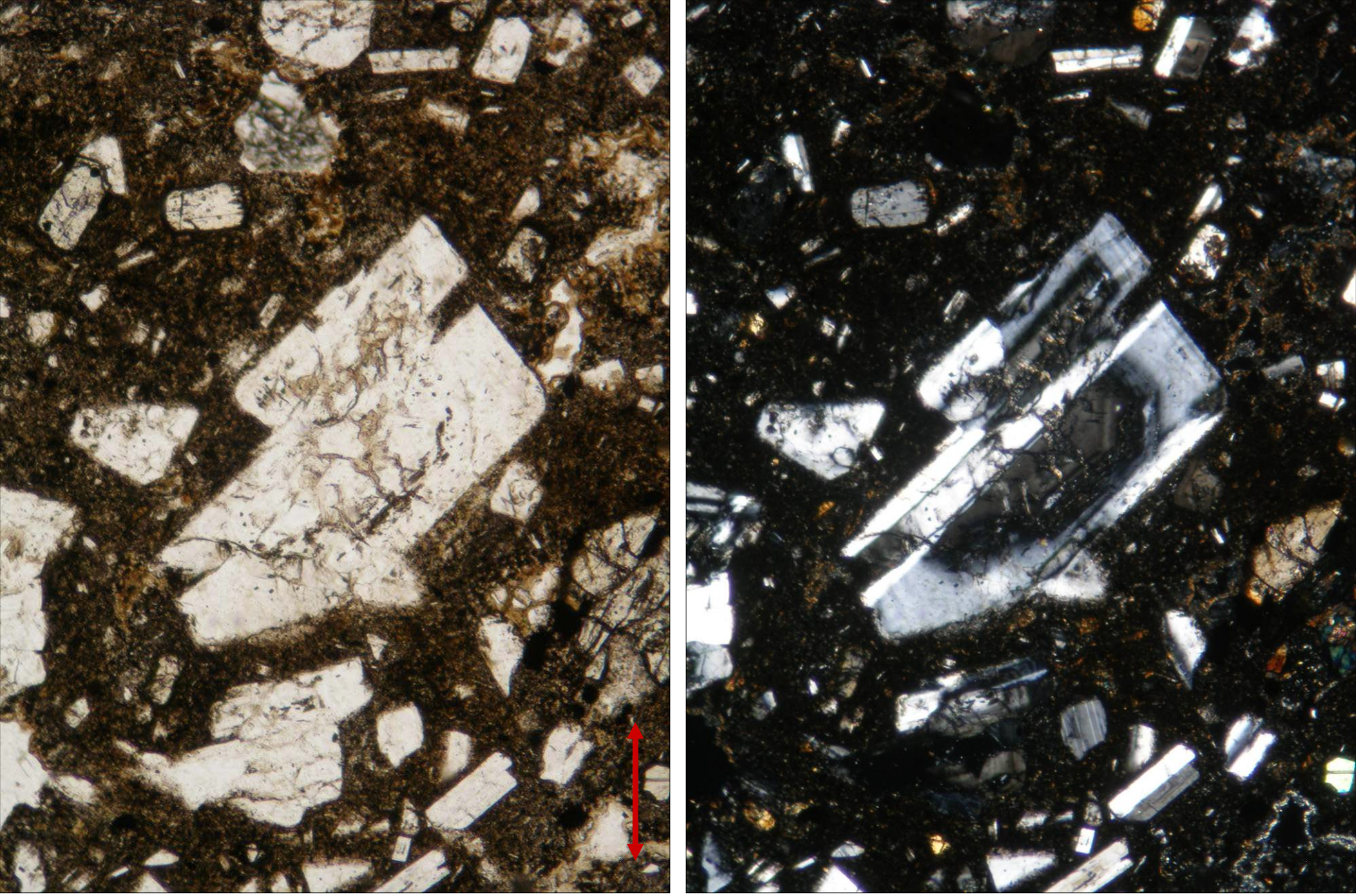
Plagioclase phenocrysts in andesite from Bánov, the Czech Republic; PPL (left) and XPL (right). Width of fields of view is ca. 1.8 mm. Photo: JiZi.



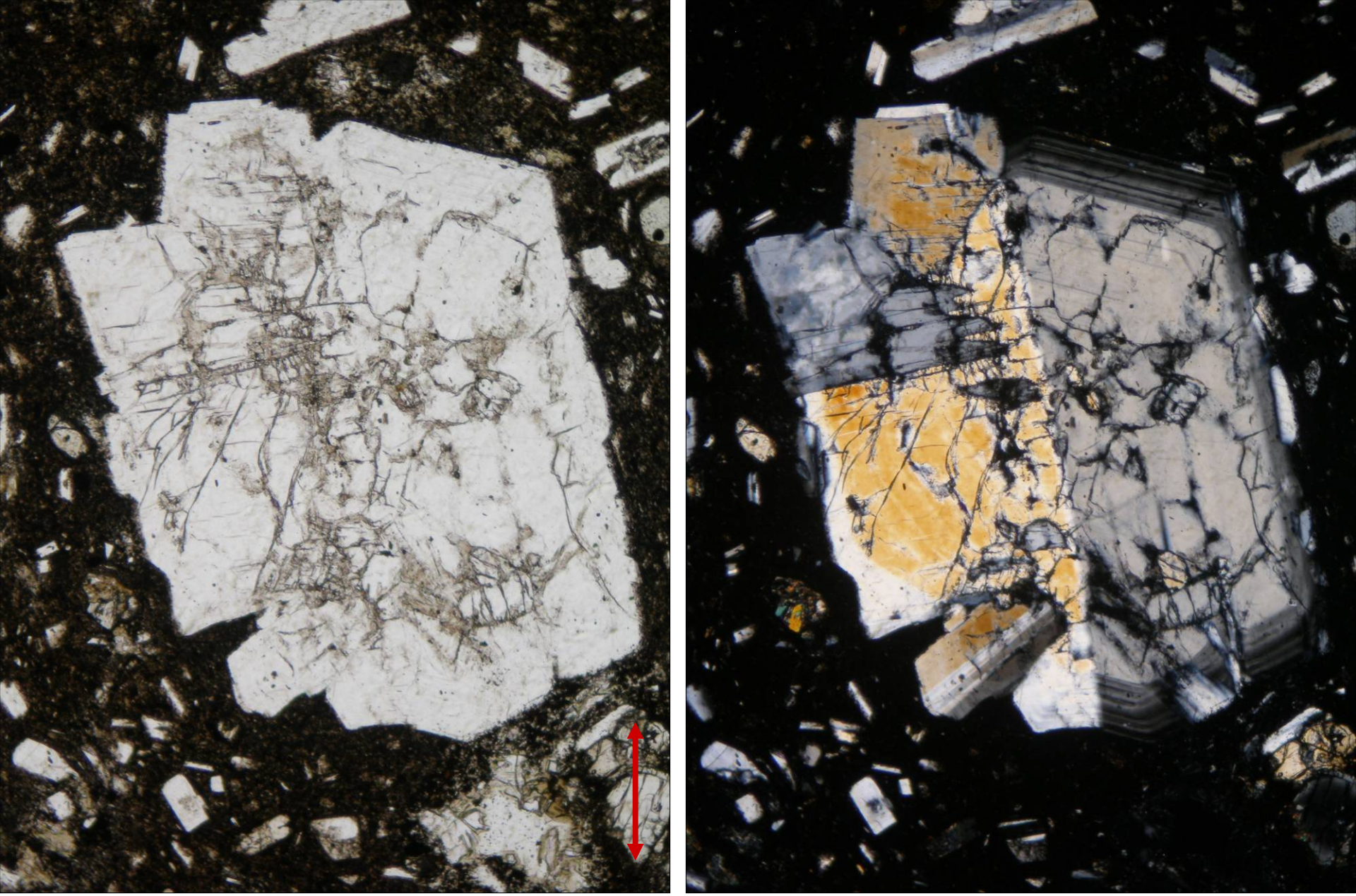
Plagioclase phenocryst in rhyolite from Žiar nad Hronom, Slovakia; PPL (left) and XPL (right). Width of fields of view is ca. 0.7 mm. Photo: JiZi.



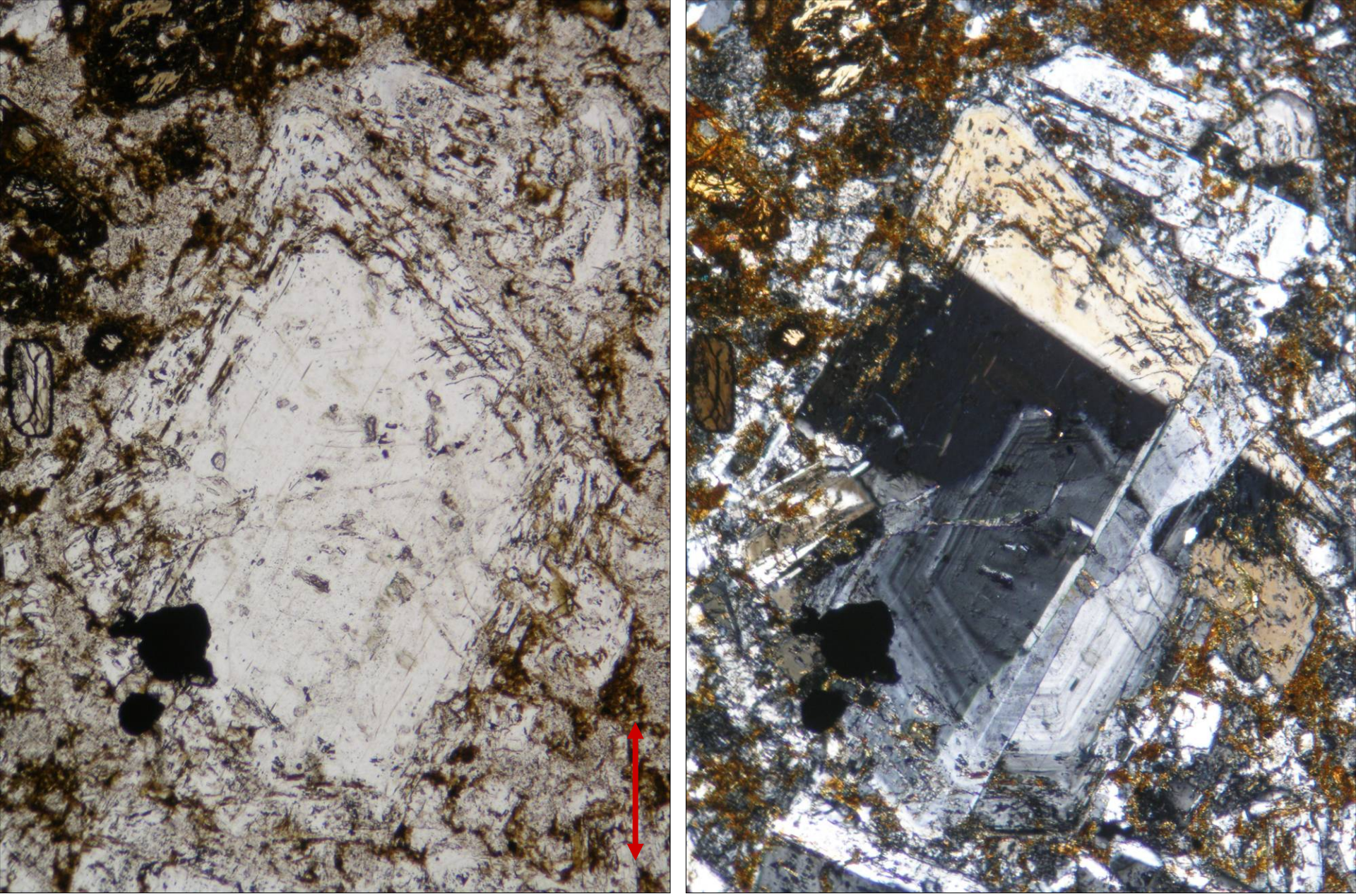
Plagioclase phenocryst (with hyaline matrix included in the rim) in andesite from Streda nad Bodrogom, Slovakia; PPL (left) and XPL (right). Width of fields of view is ca. 2.2 mm. Photo: JiZi.



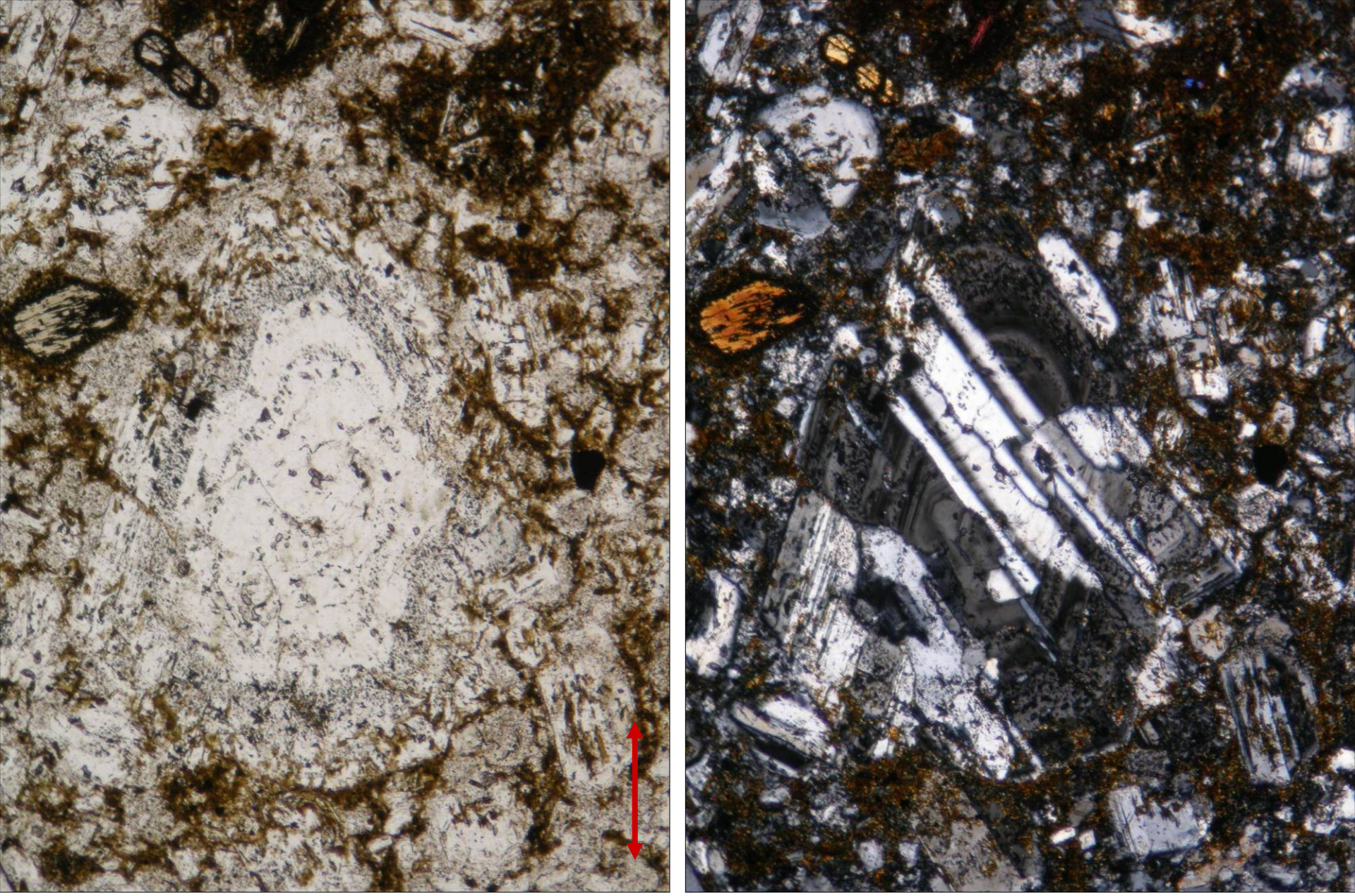
Plagioclase phenocrysts in andesite from Streda nad Bodrogom, Slovakia; PPL (left) and XPL (right). Width of fields of view is ca. 2.0 mm. Photo: JiZi.



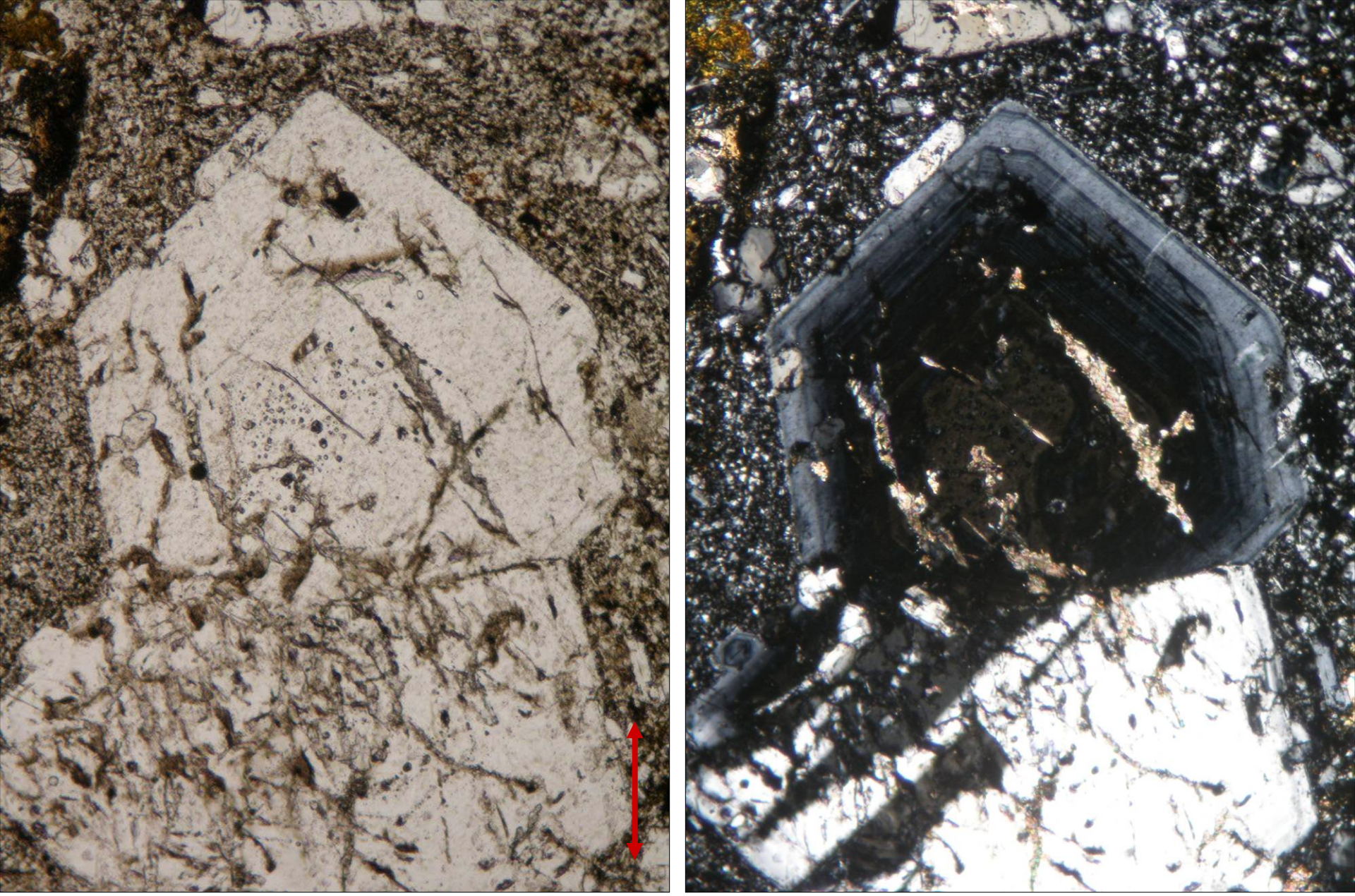
Plagioclase phenocryst in andesite from Streda nad Bodrogom, Slovakia; PPL (left) and XPL (right). Width of fields of view is ca. 2.0 mm. Photo: JiZi.



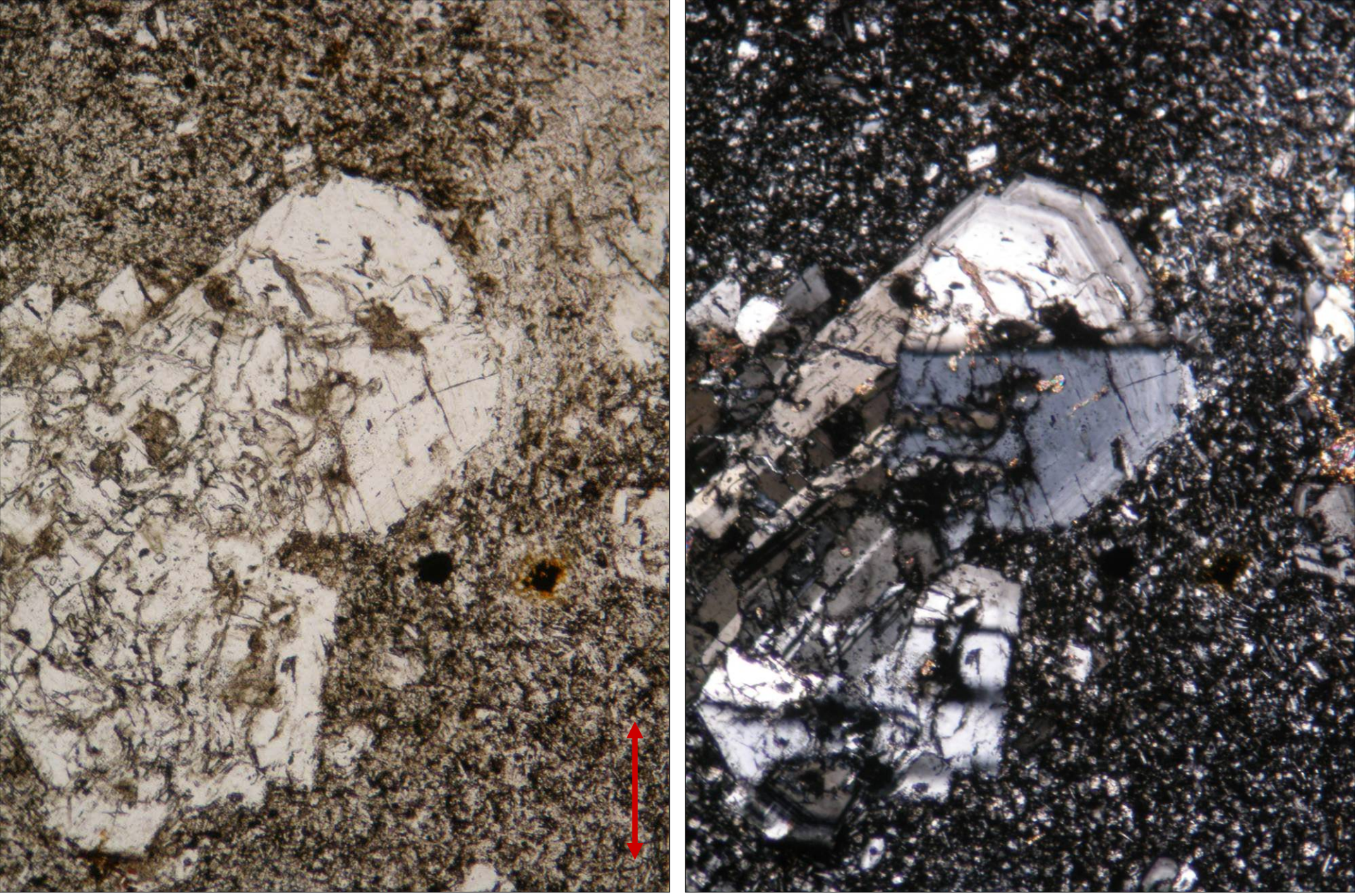
Plagioclase in basalt from Fintice, Slovakia; PPL (left) and XPL (right). Width of fields of view is ca. 1.7 mm. Photo: JiZi.



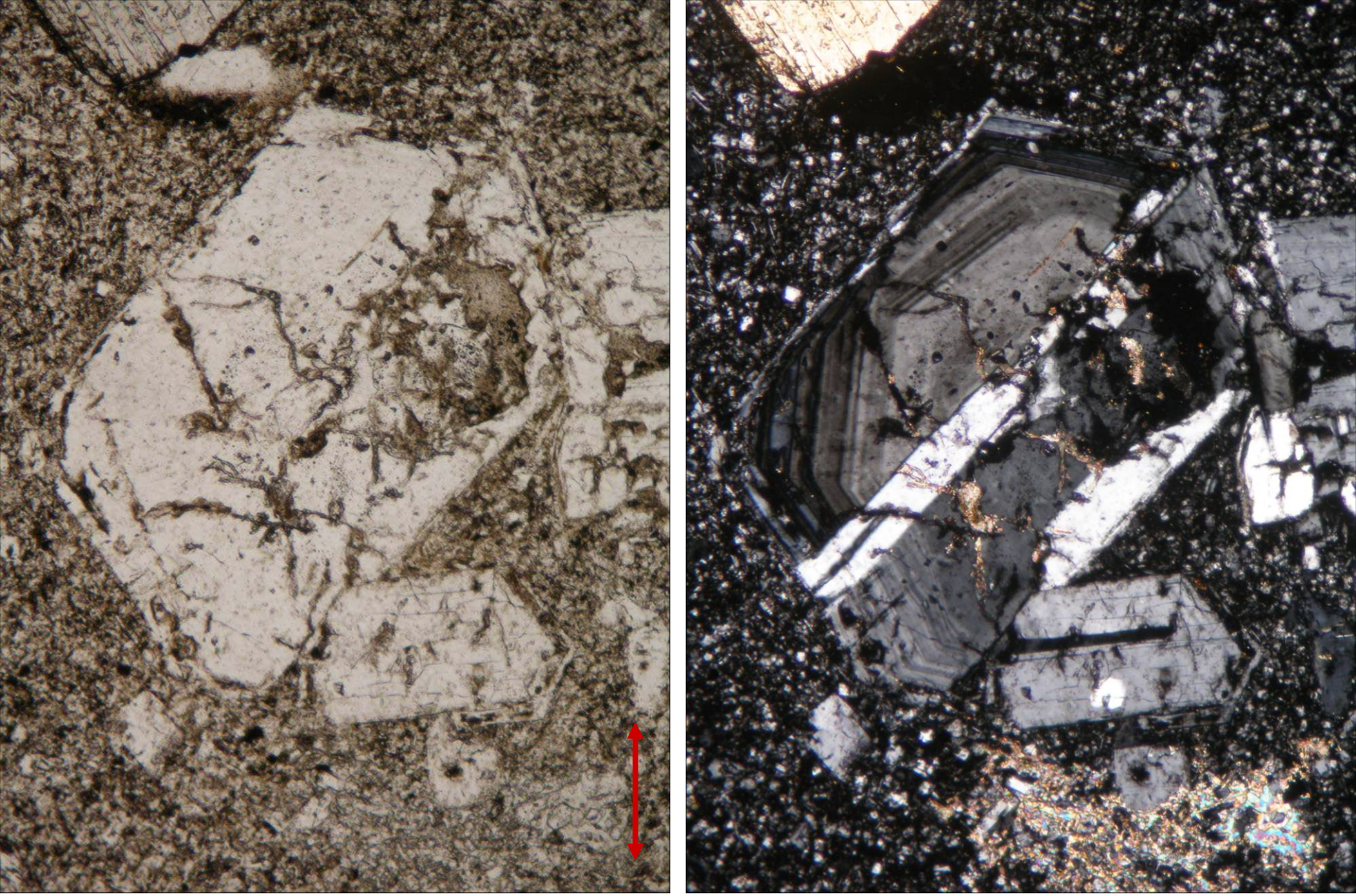
Plagioclase in basalt from Fintice, Slovakia; PPL (left) and XPL (right). Width of fields of view is ca. 1.7 mm. Photo: JiZi.



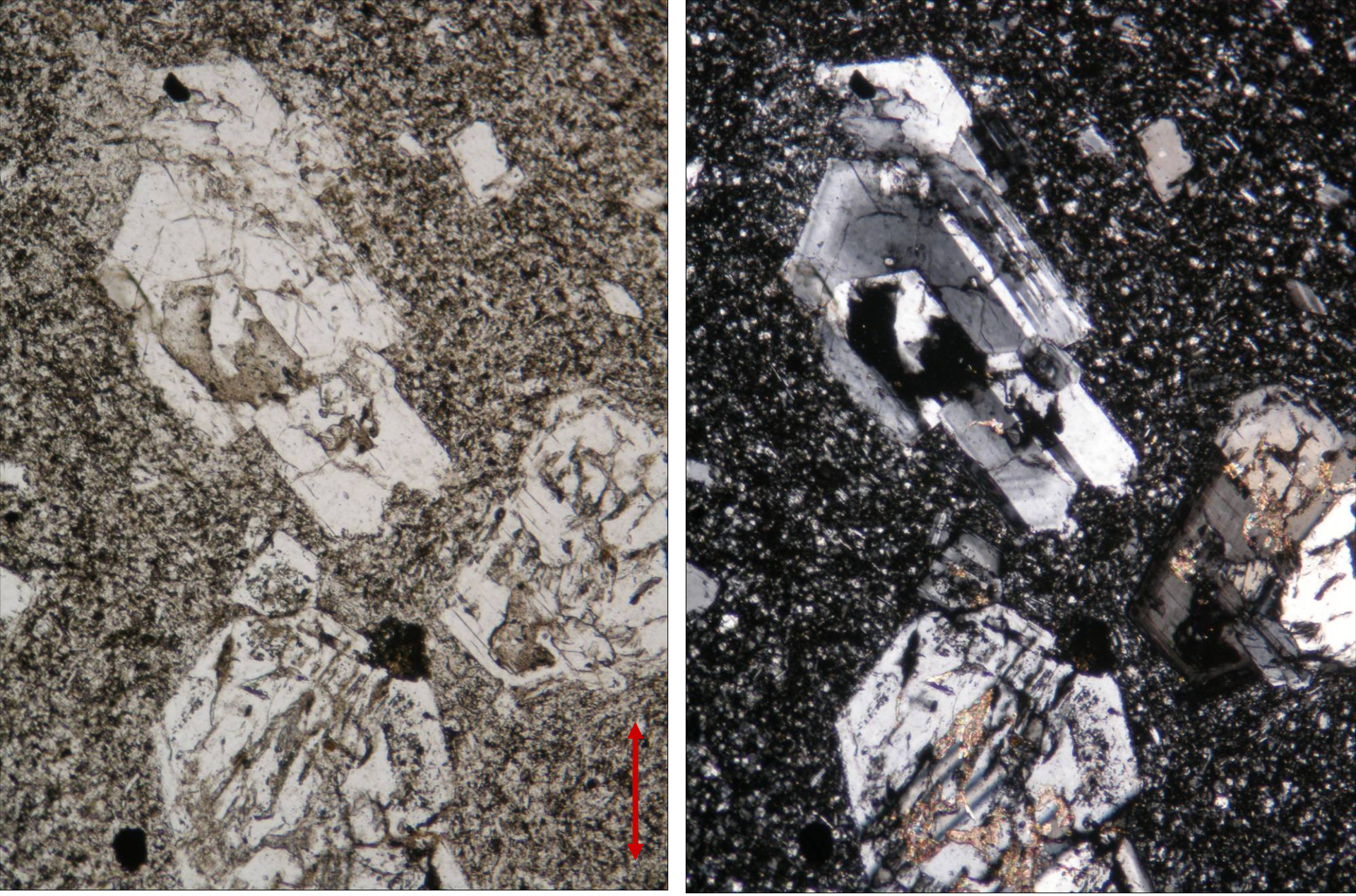
Zoned plagioclase phenocrysts in andesite from Fintice, Slovakia; PPL (left) and XPL (right). Width of fields of view is ca. 1.7 mm. Photo: JiZi.



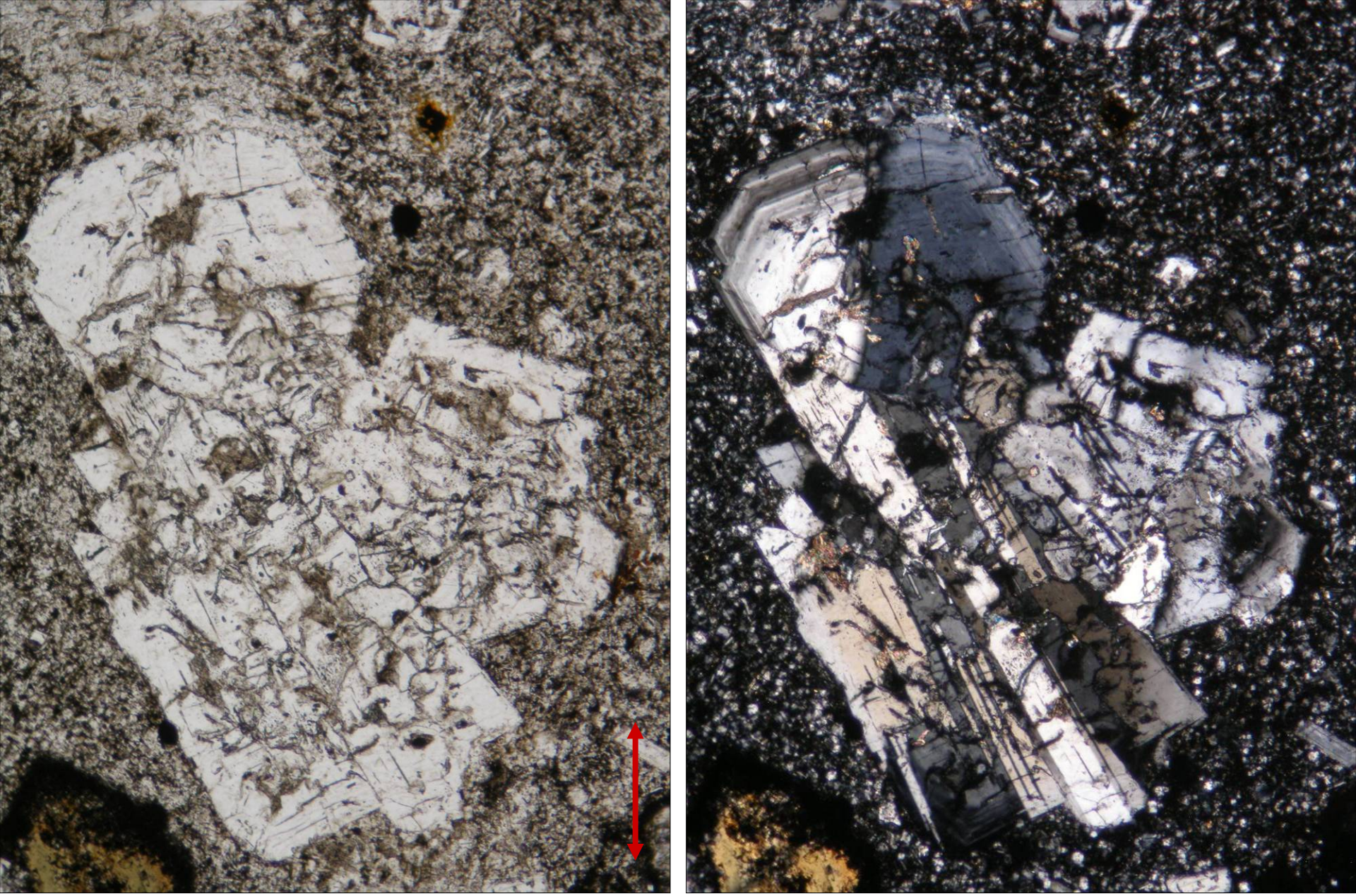
Plagioclase phenocrysts in andesite from Fintice, Slovakia; PPL (left) and XPL (right). Width of fields of view is ca. 1.7 mm. Photo: JiZi.



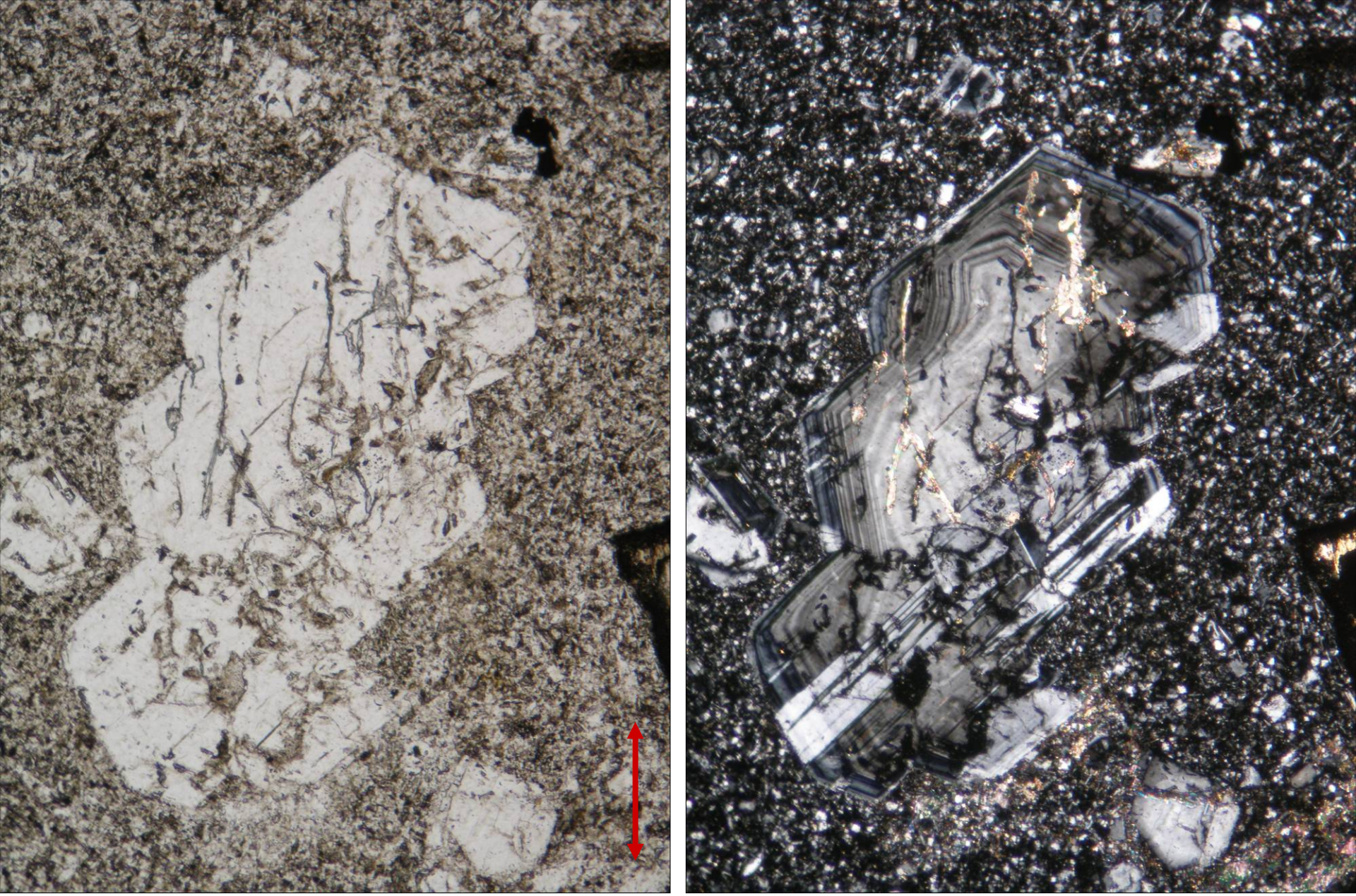
Plagioclase phenocrysts in andesite from Fintice, Slovakia; PPL (left) and XPL (right). Width of fields of view is ca. 1.7 mm. Photo: JiZi.



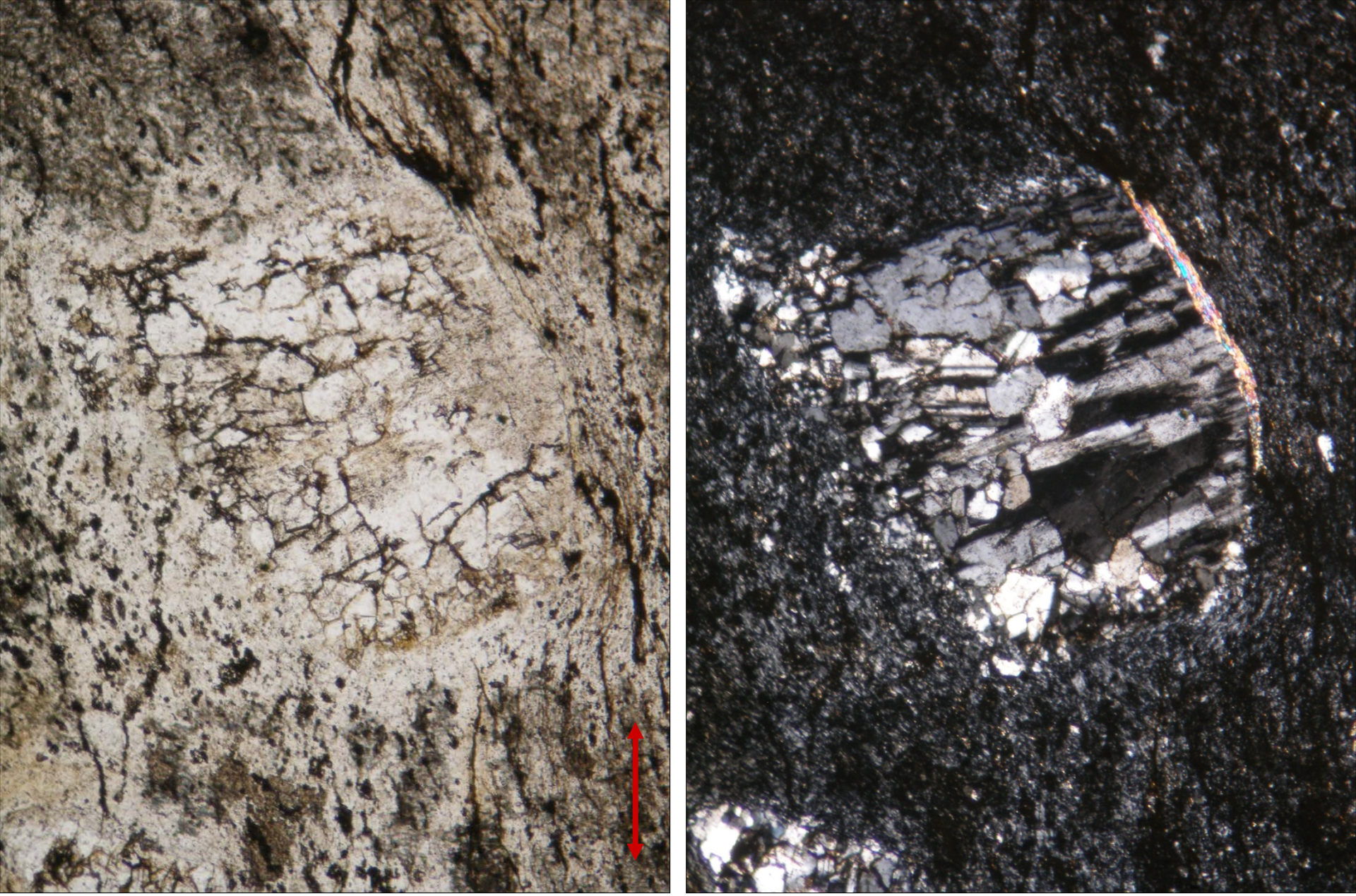
Plagioclase phenocrysts in andesite from Fintice, Slovakia; PPL (left) and XPL (right). Width of fields of view is ca. 1.7 mm. Photo: JiZi.



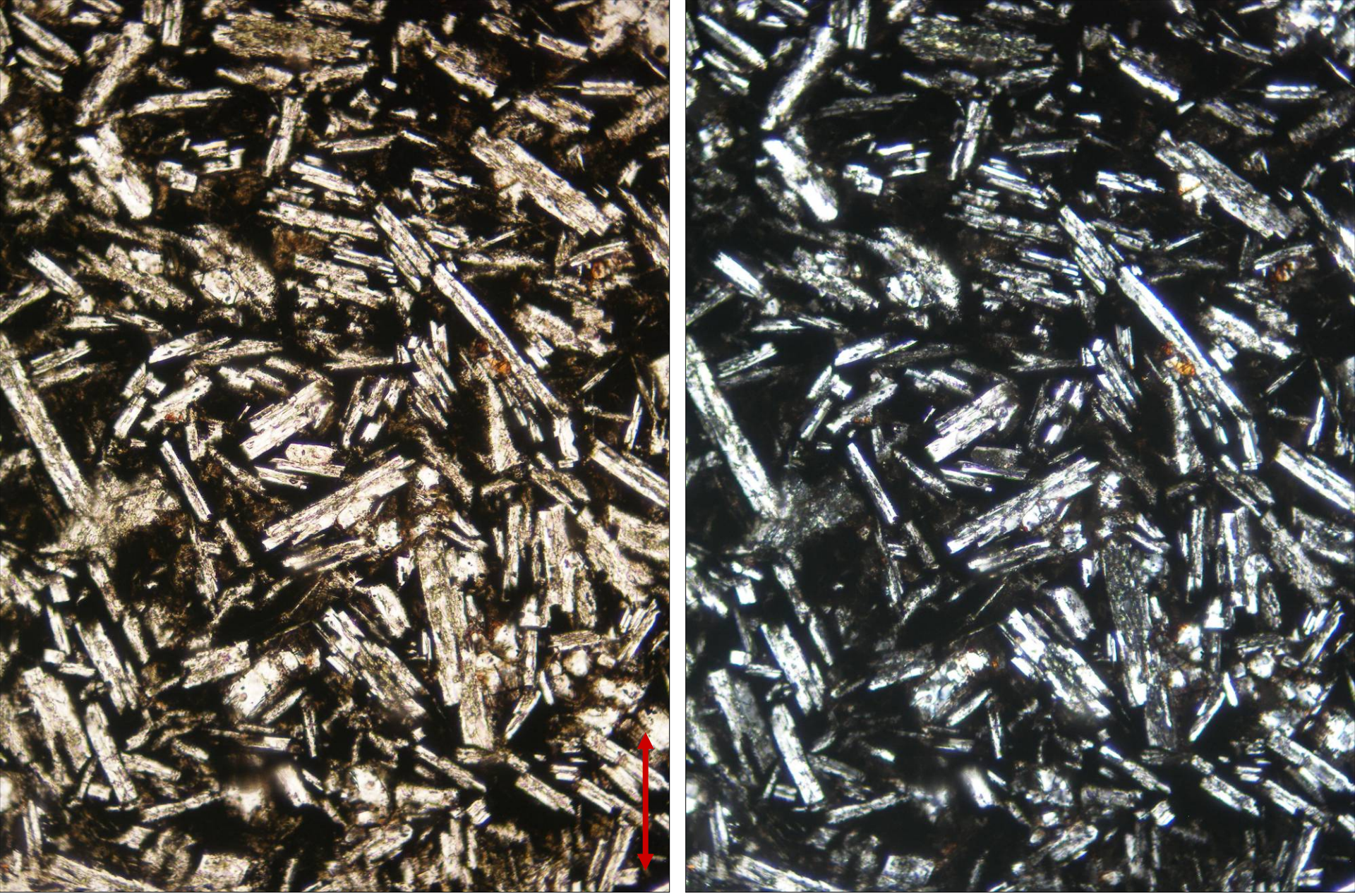
Plagioclase phenocrysts in andesite from Fintice, Slovakia; PPL (left) and XPL (right). Width of fields of view is ca. 1.7 mm. Photo: JiZi.



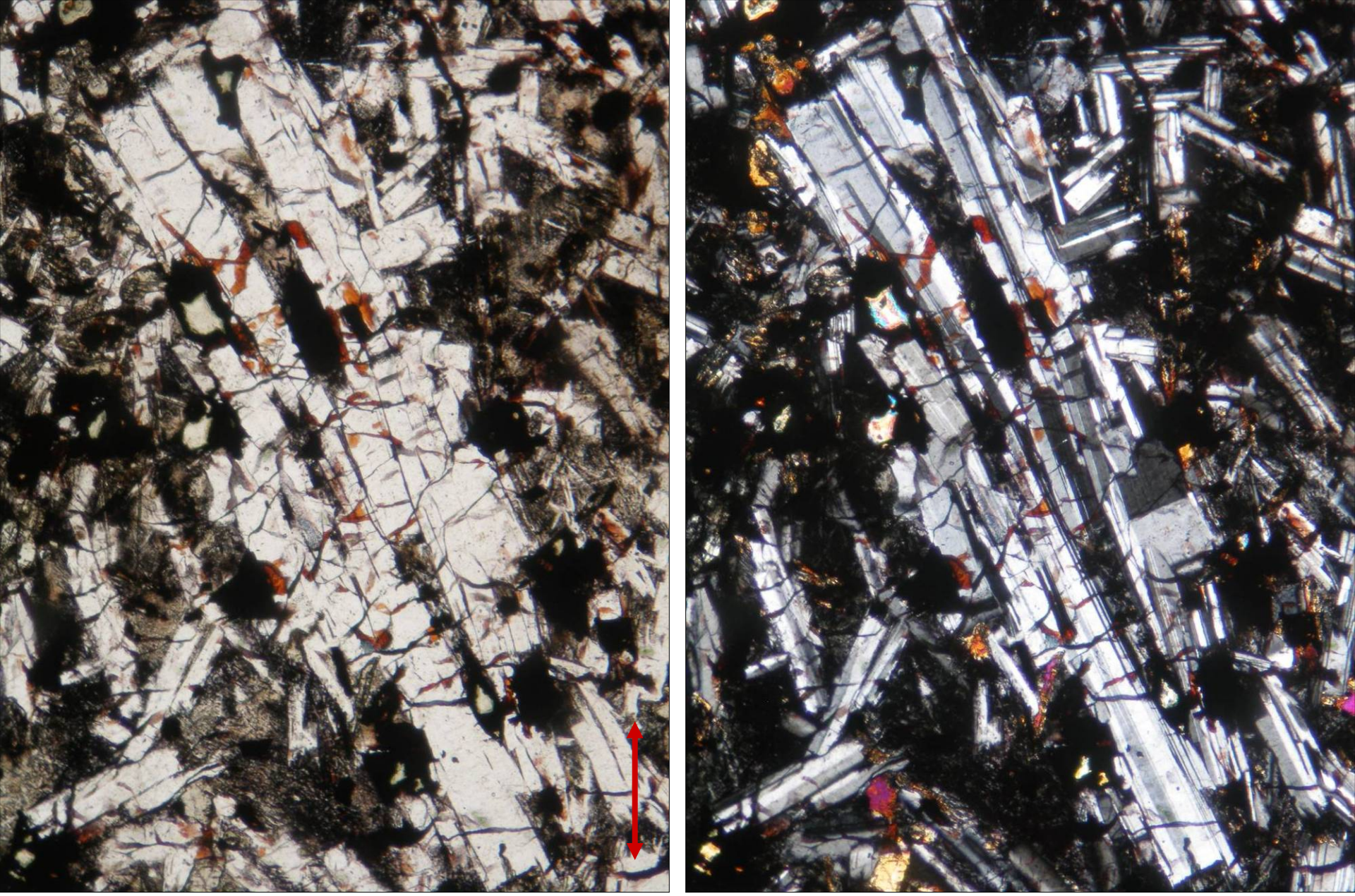
Plagioclase phenocryst in andesite from Fintice, Slovakia; PPL (left) and XPL (right). Width of fields of view is ca. 1.7 mm. Photo: JiZi.



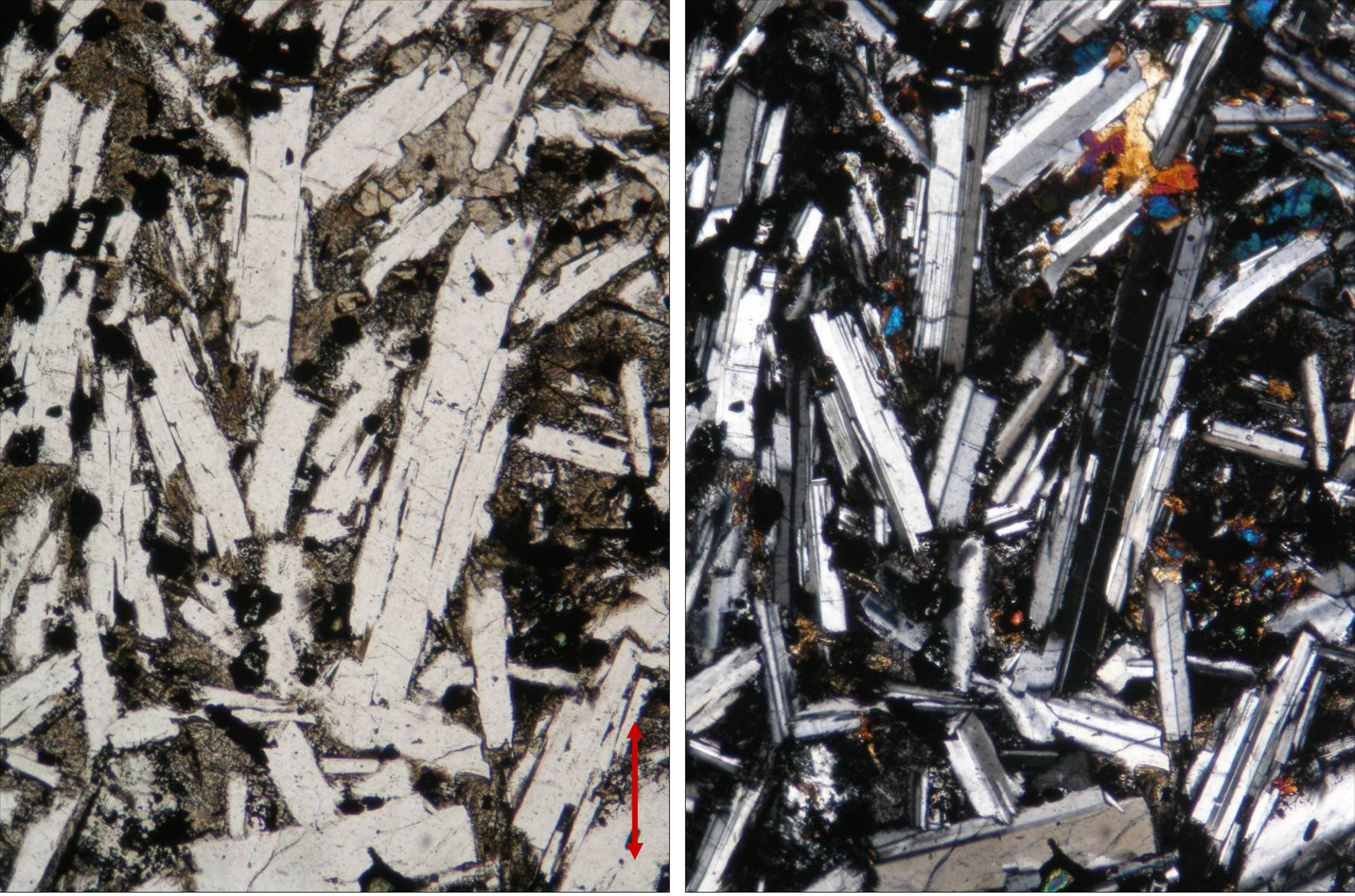
Albite phenocryst in palaeorhyolite from Ludmírov, the Czech Republic; PPL (left) and XPL (right). Width of fields of view is ca. 1.8 mm. Photo: JiZi.



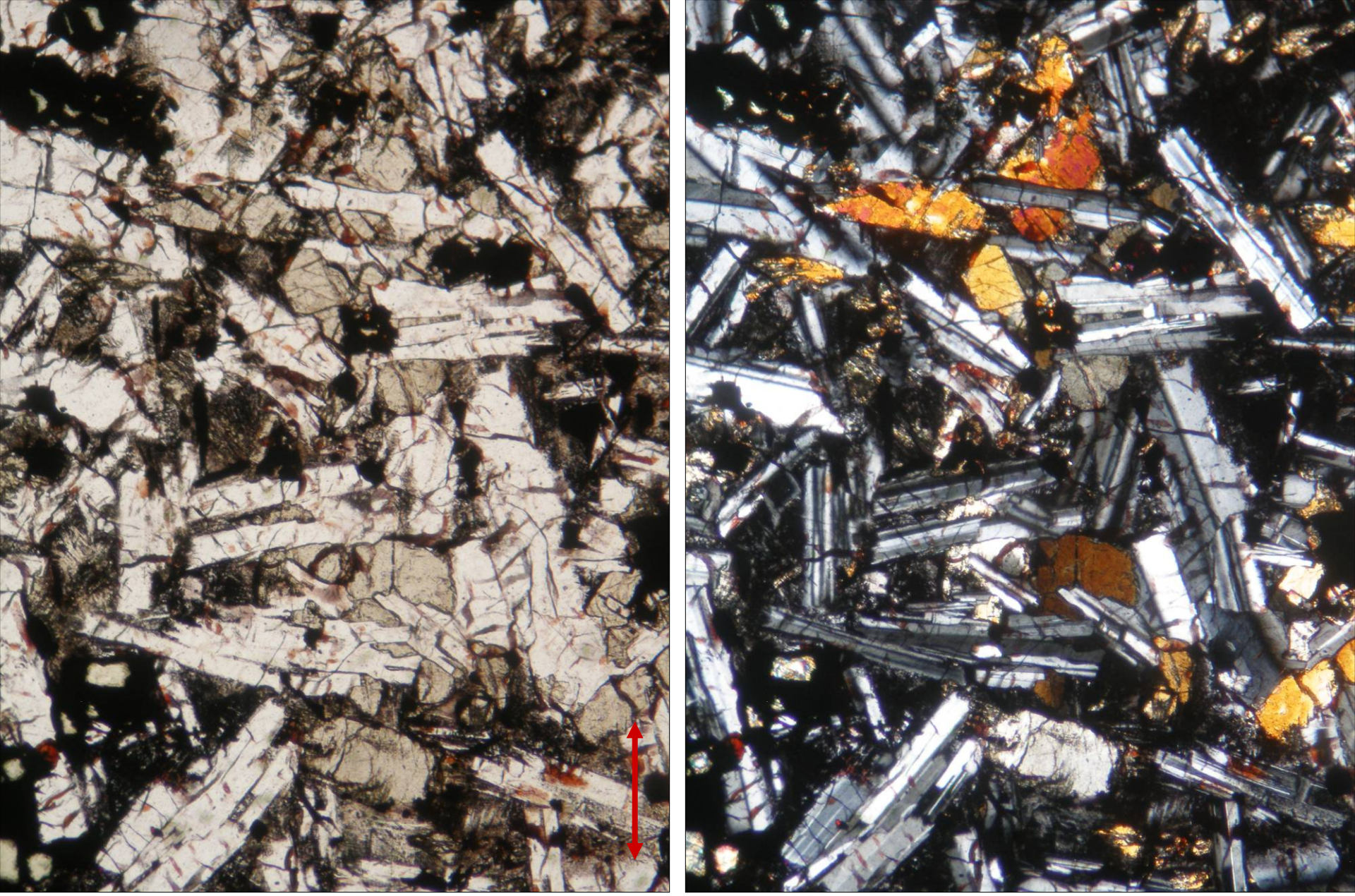
Plagioclase in palaeobasalt from Bezděčín, the Czech Republic; PPL (left) and XPL (right). Width of fields of view is ca. 1.0 mm. Photo: JiZi.



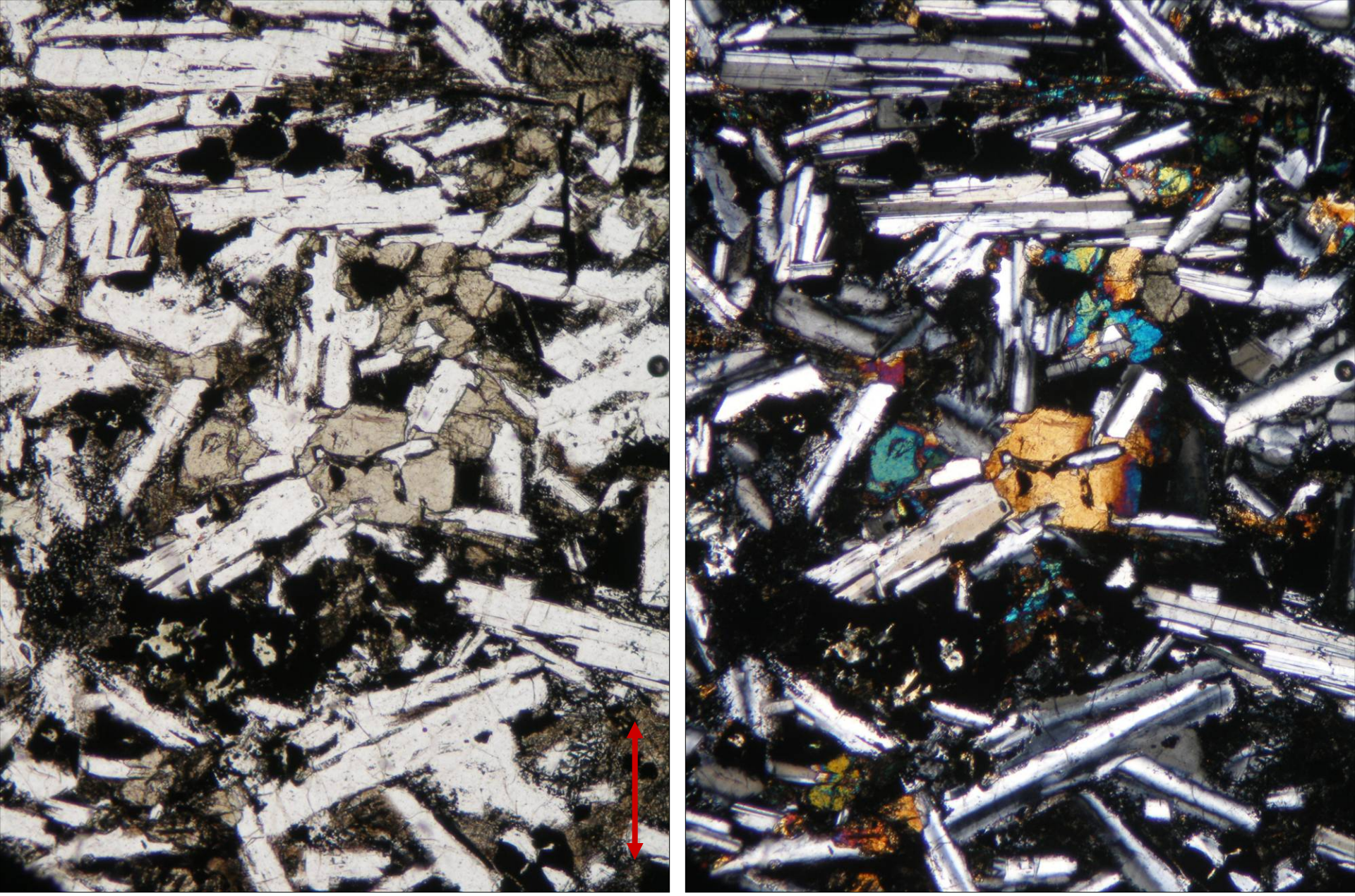
Plagioclase in palaeobasalt from Studenec, the Czech Republic; PPL (left) and XPL (right). Width of fields of view is ca. 1.7 mm. Photo: JiZi.



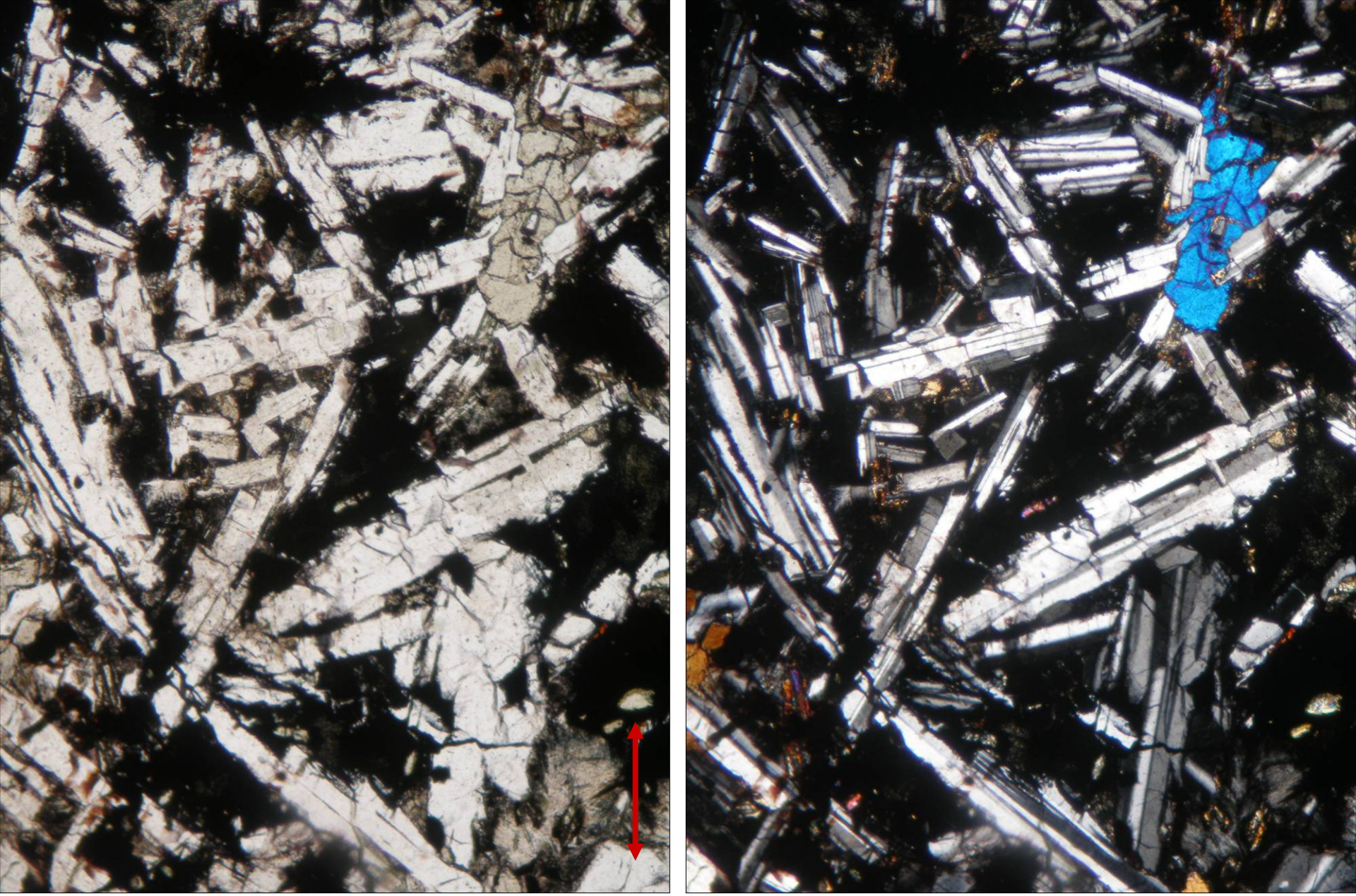
Plagioclase in palaeobasalt from Studenec, the Czech Republic; PPL (left) and XPL (right). Width of fields of view is ca. 1.7 mm. Photo: JiZi.



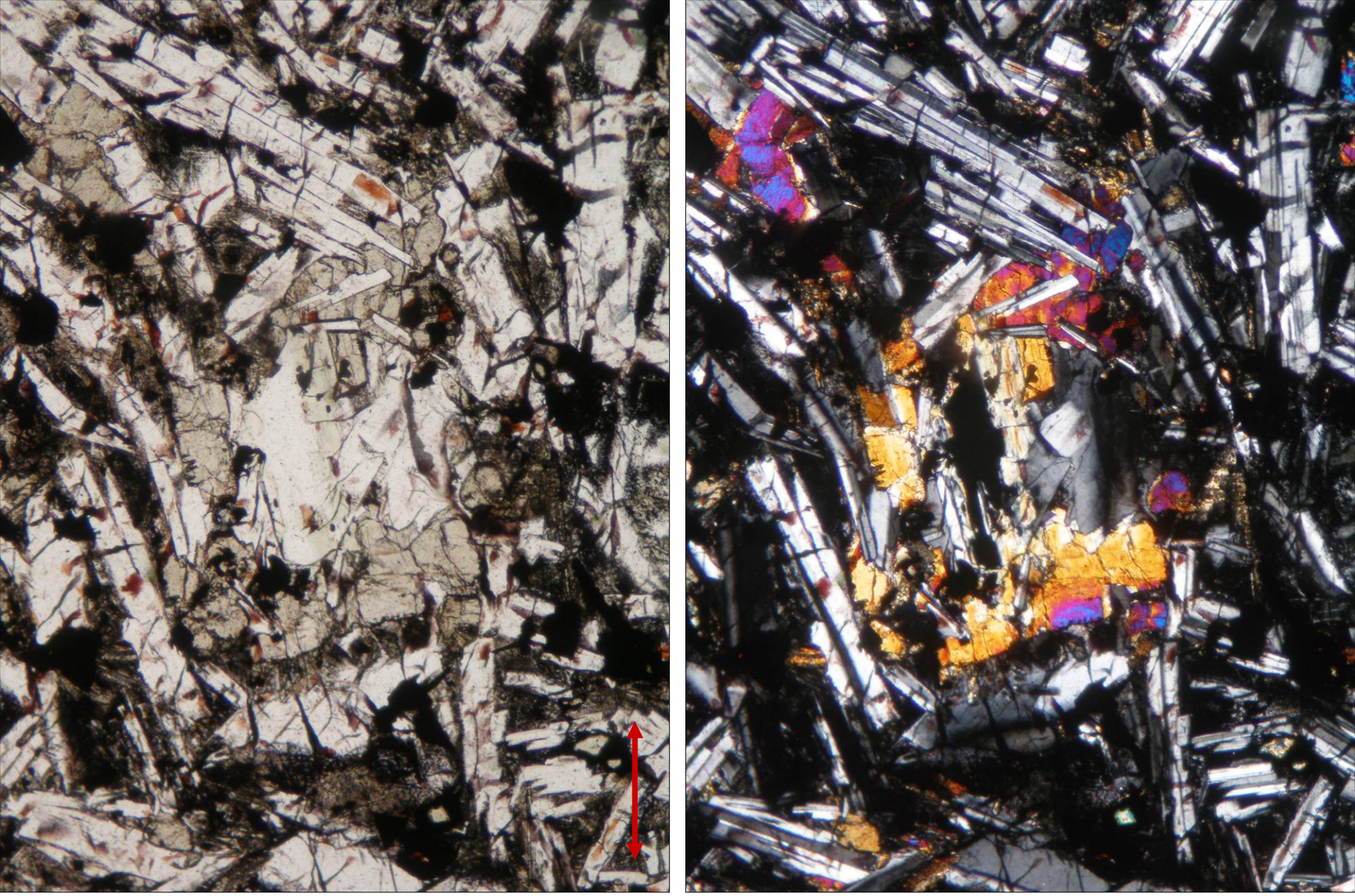
Plagioclase and pyroxene in palaeobasalt from Studenec, the Czech Republic; PPL (left) and XPL (right). Width of fields of view is ca. 1.7 mm. Photo: JiZi.



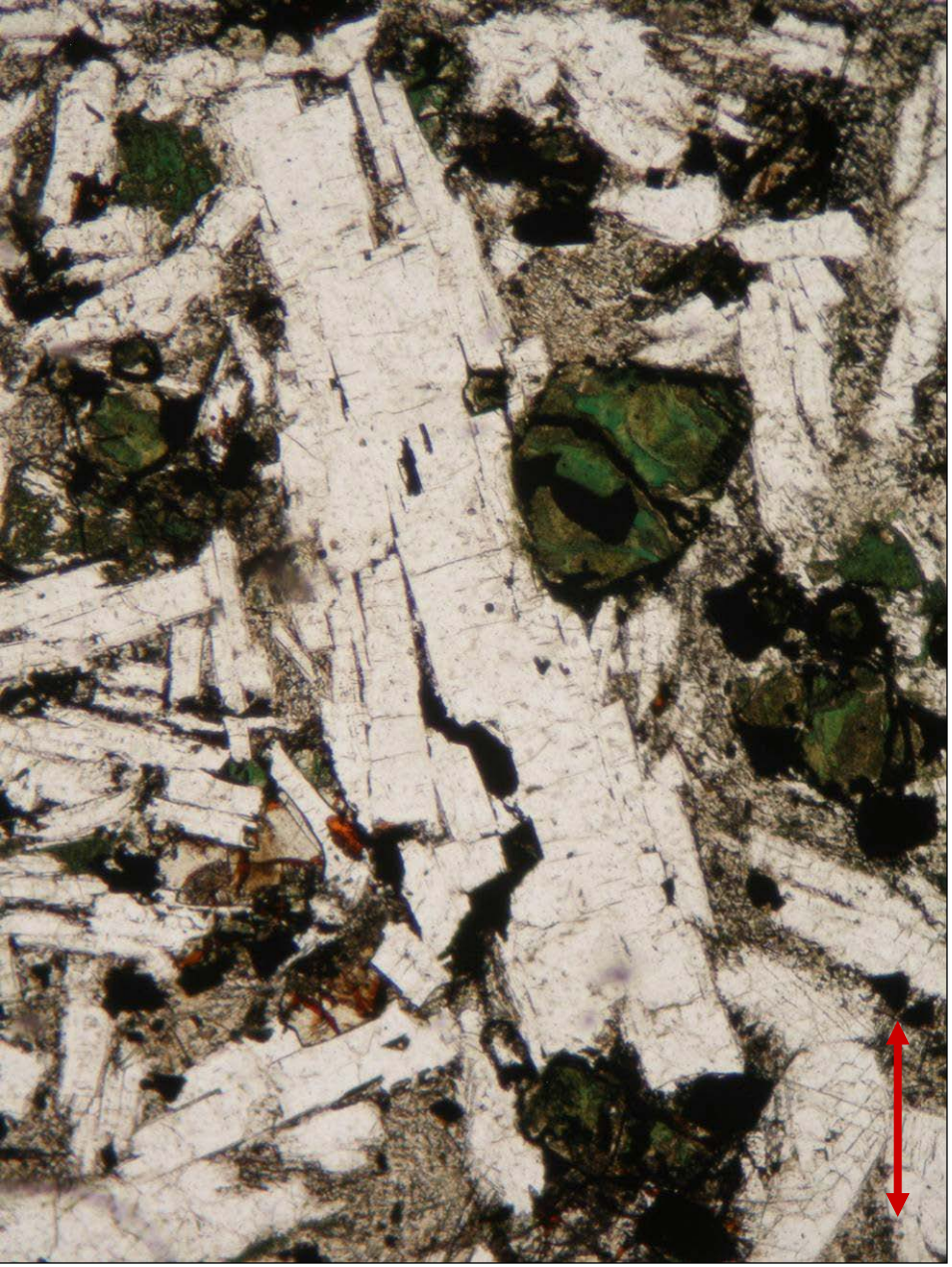
Plagioclase and pyroxene in palaeobasalt from Studenec, the Czech Republic; PPL (left) and XPL (right). Width of fields of view is ca. 1.7 mm. Photo: JiZi.



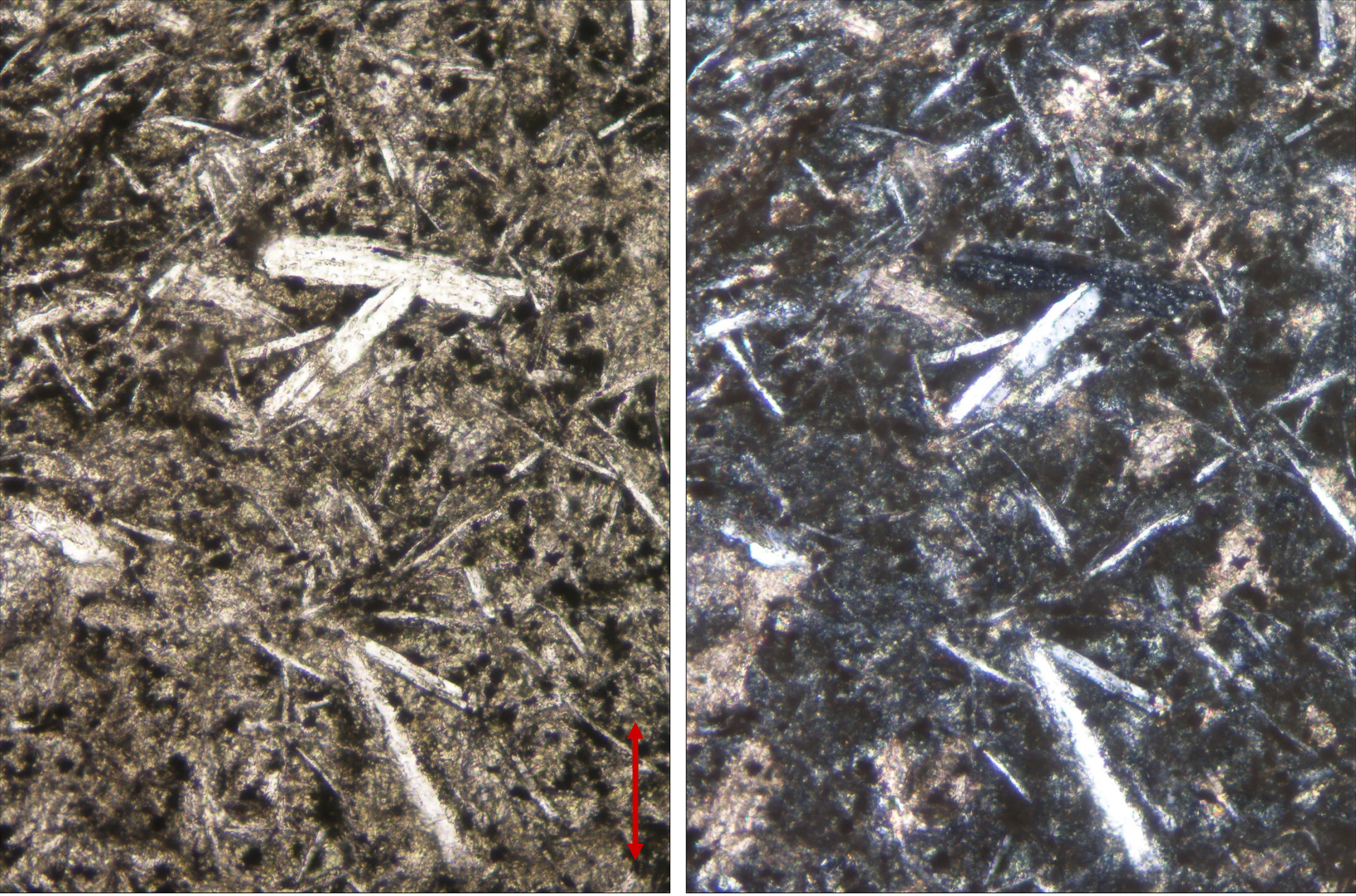
Plagioclase and pyroxene in palaeobasalt from Studenec, the Czech Republic; PPL (left) and XPL (right). Width of fields of view is ca. 1.7 mm. Photo: JiZi.



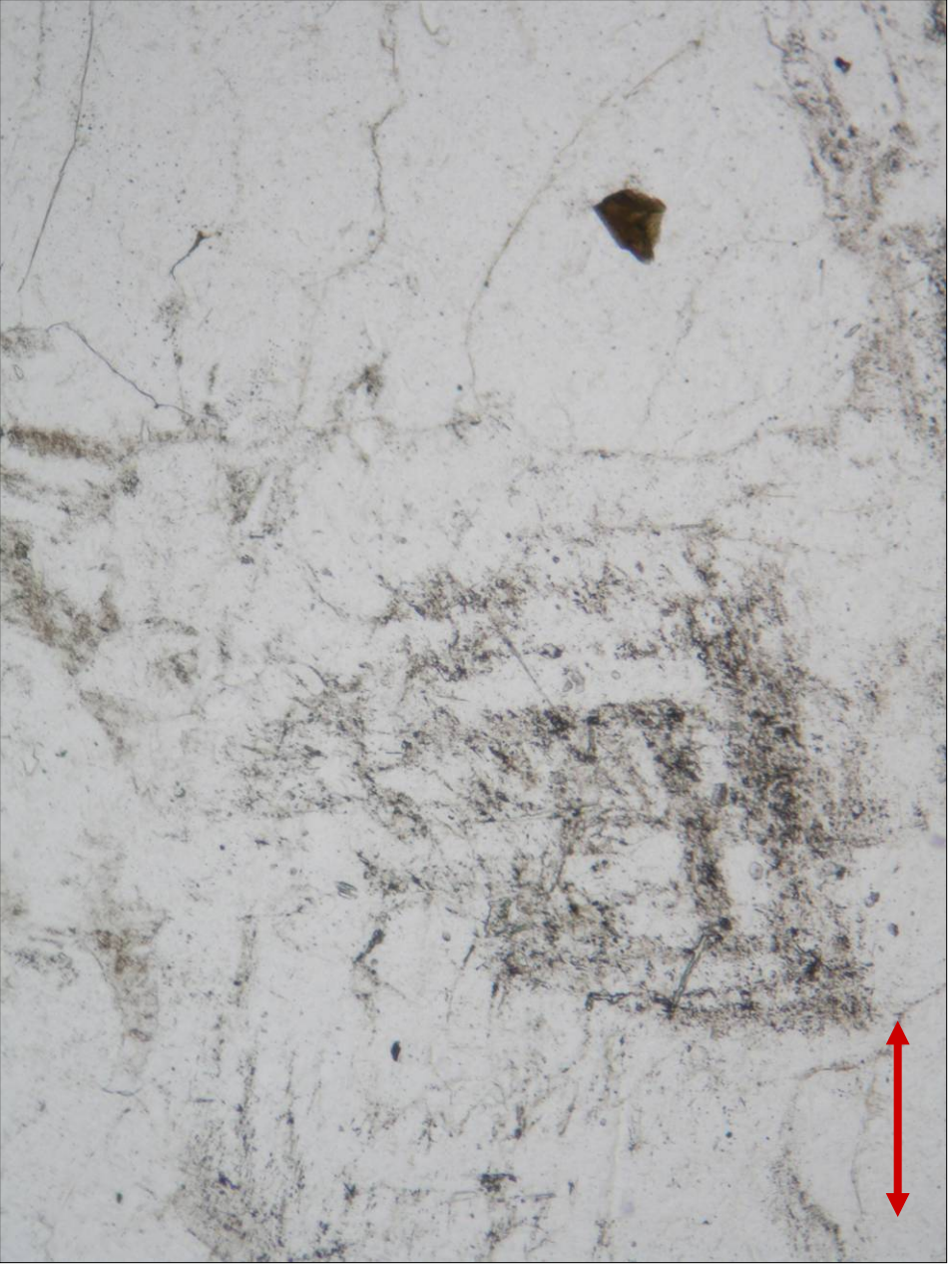
Plagioclase and pyroxene in palaeobasalt from Studenec, the Czech Republic; PPL (left) and XPL (right). Width of fields of view is ca. 1.7 mm. Photo: JiZi.

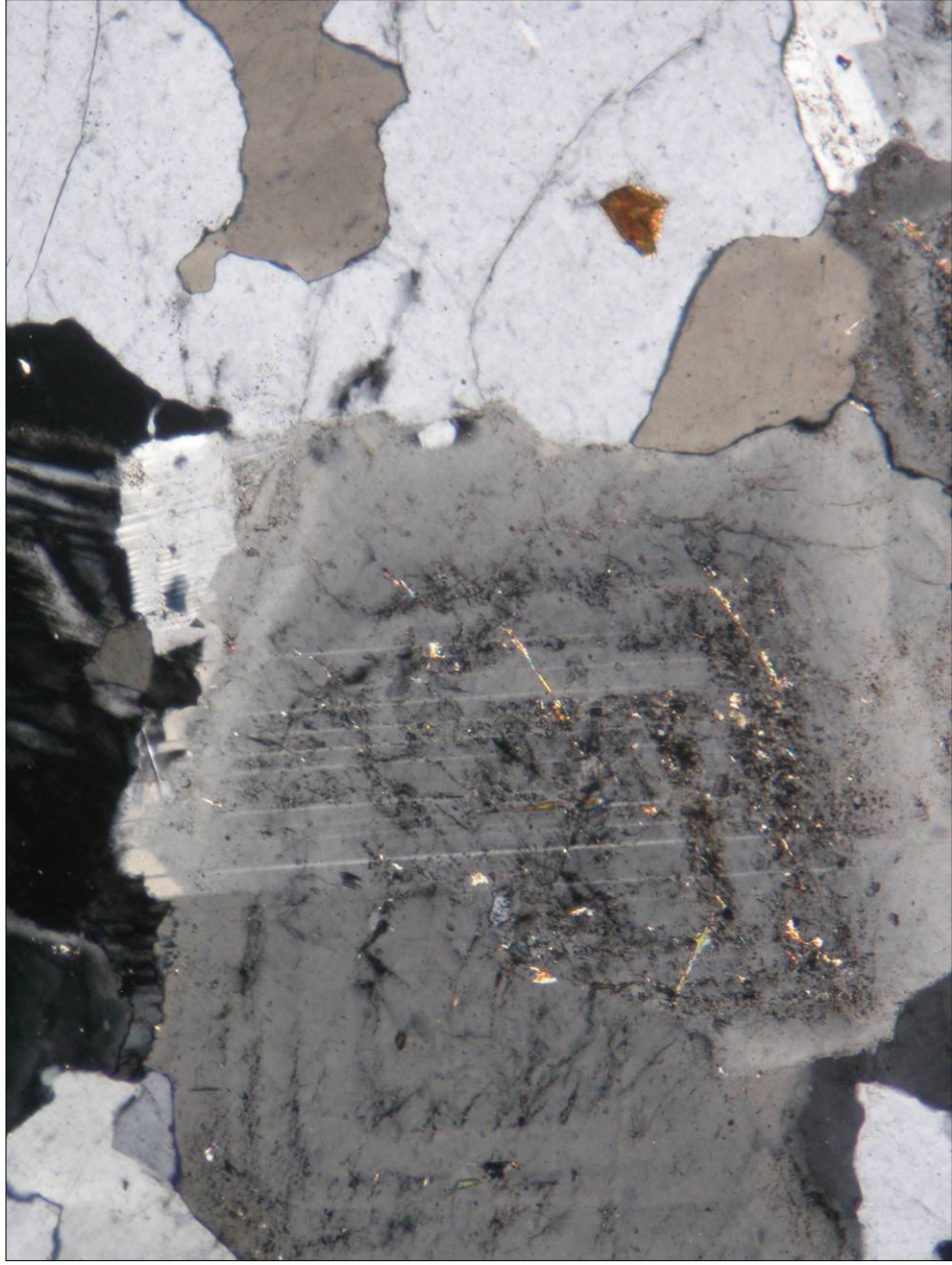


Plagioclase and altered olivine in palaeobasalt from Studenec, the Czech Republic; PPL (left) and XPL (right). Width of fields of view is ca. 1.7 mm. Photo: JiZi.

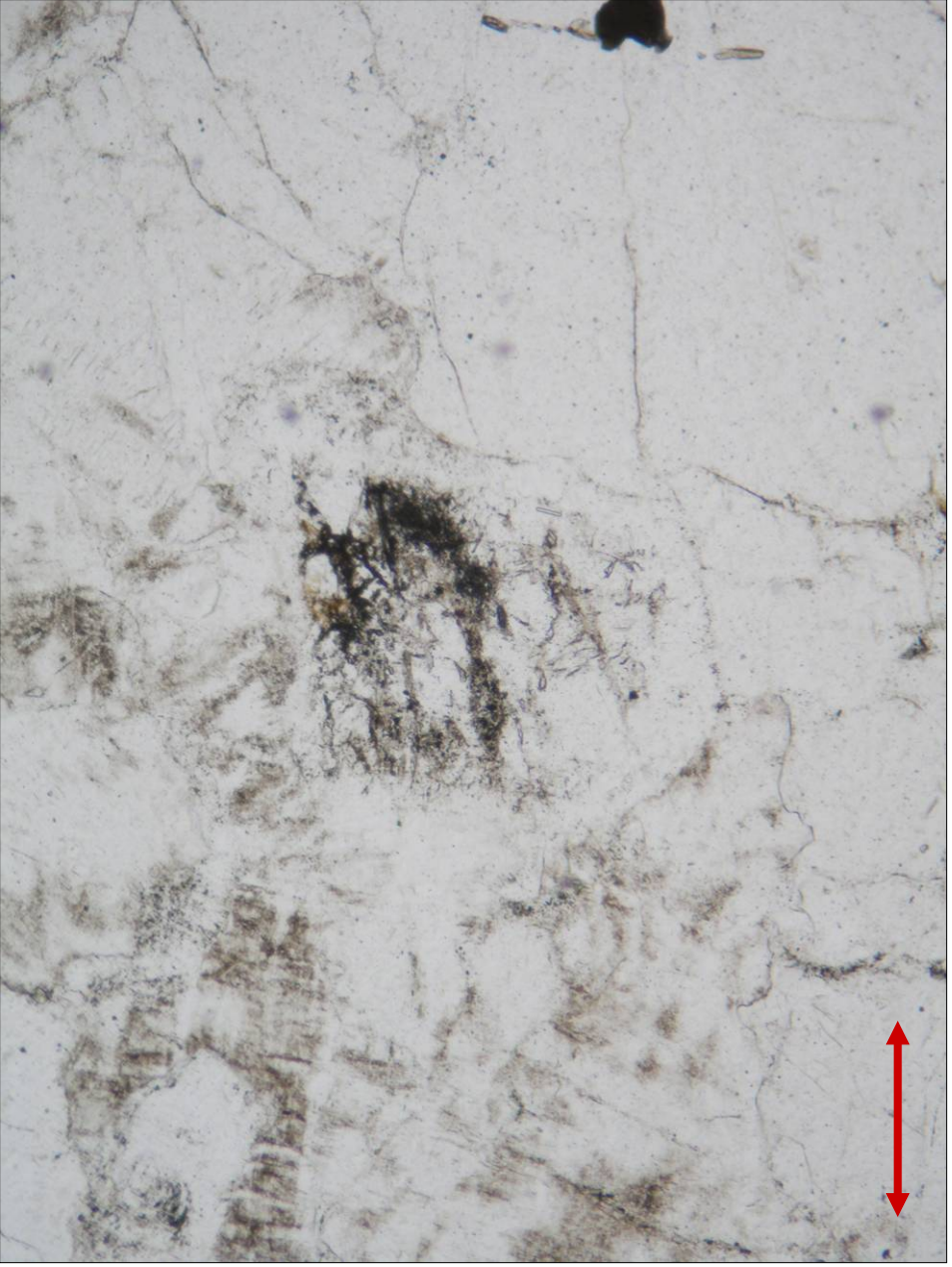


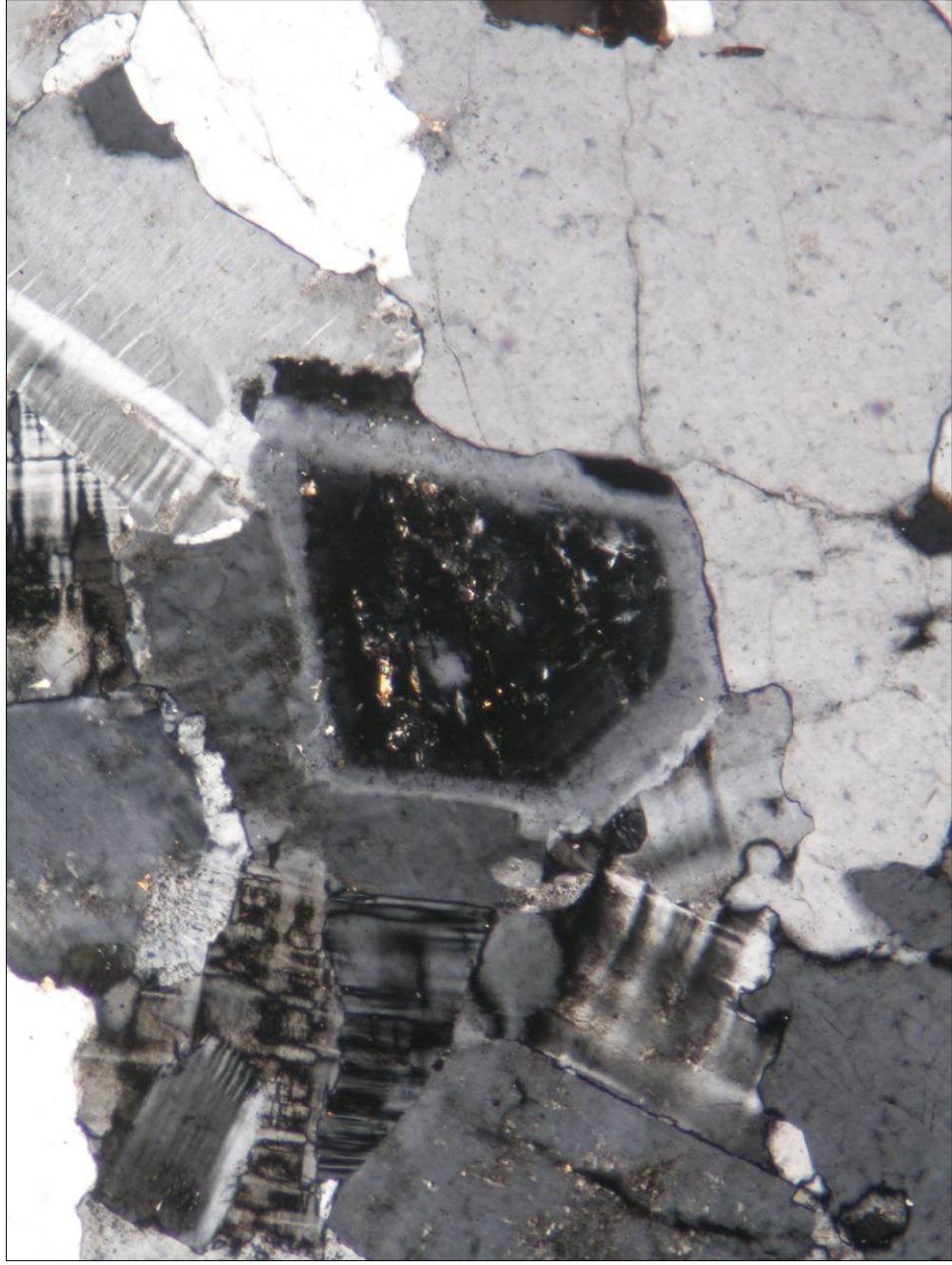
Plagioclase in altered palaeobasalt from Moravský Beroun, the Czech Republic; PPL (left) and XPL (right). Width of fields of view is ca. 0.4 mm. Photo: JiZi.



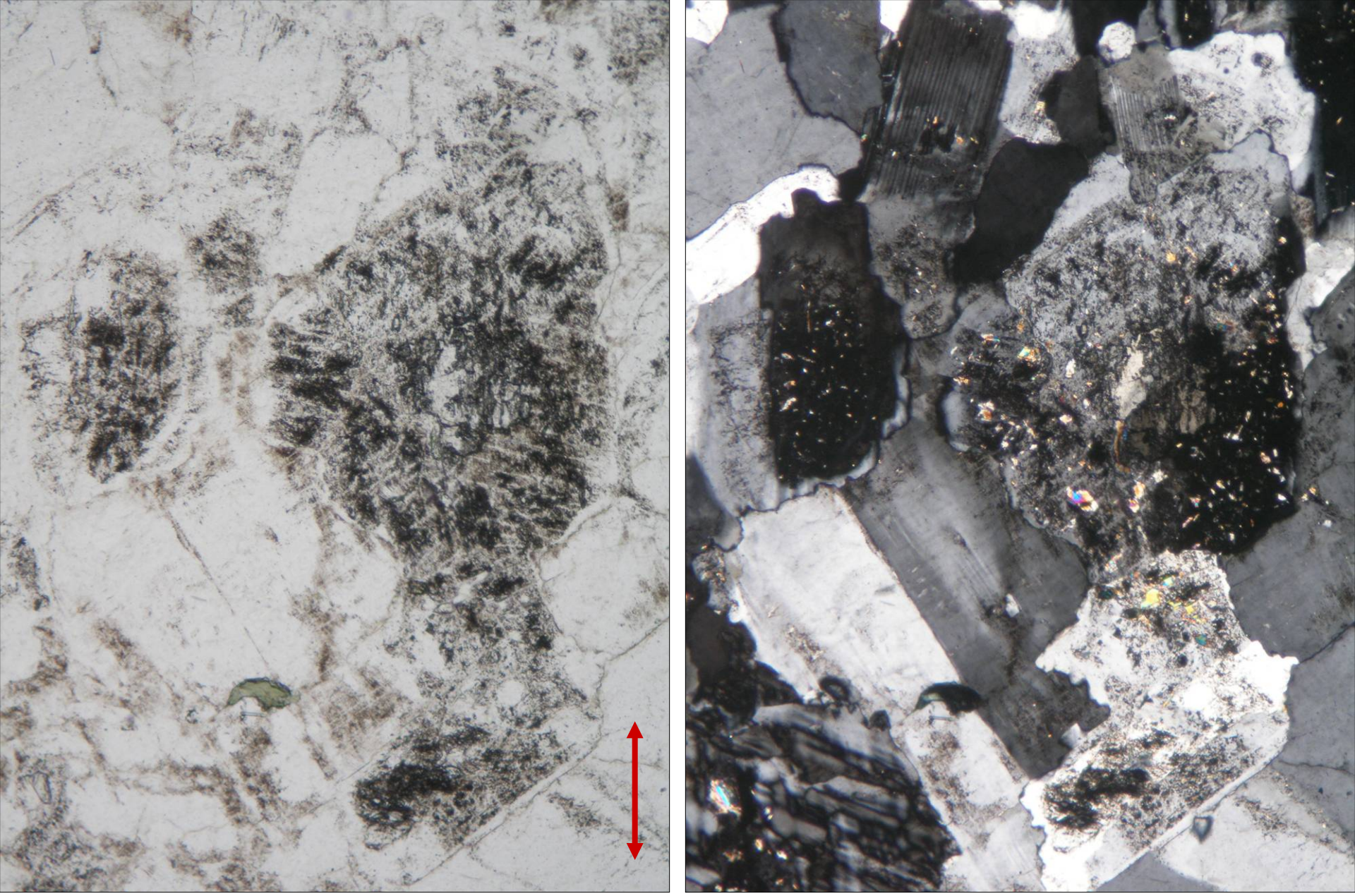


Zoned plagioclase in granite from Černá Voda, the Czech Republic; PPL (left) and XPL (right). Width of fields of view is ca. 1.7 mm. Photo: JiZi.

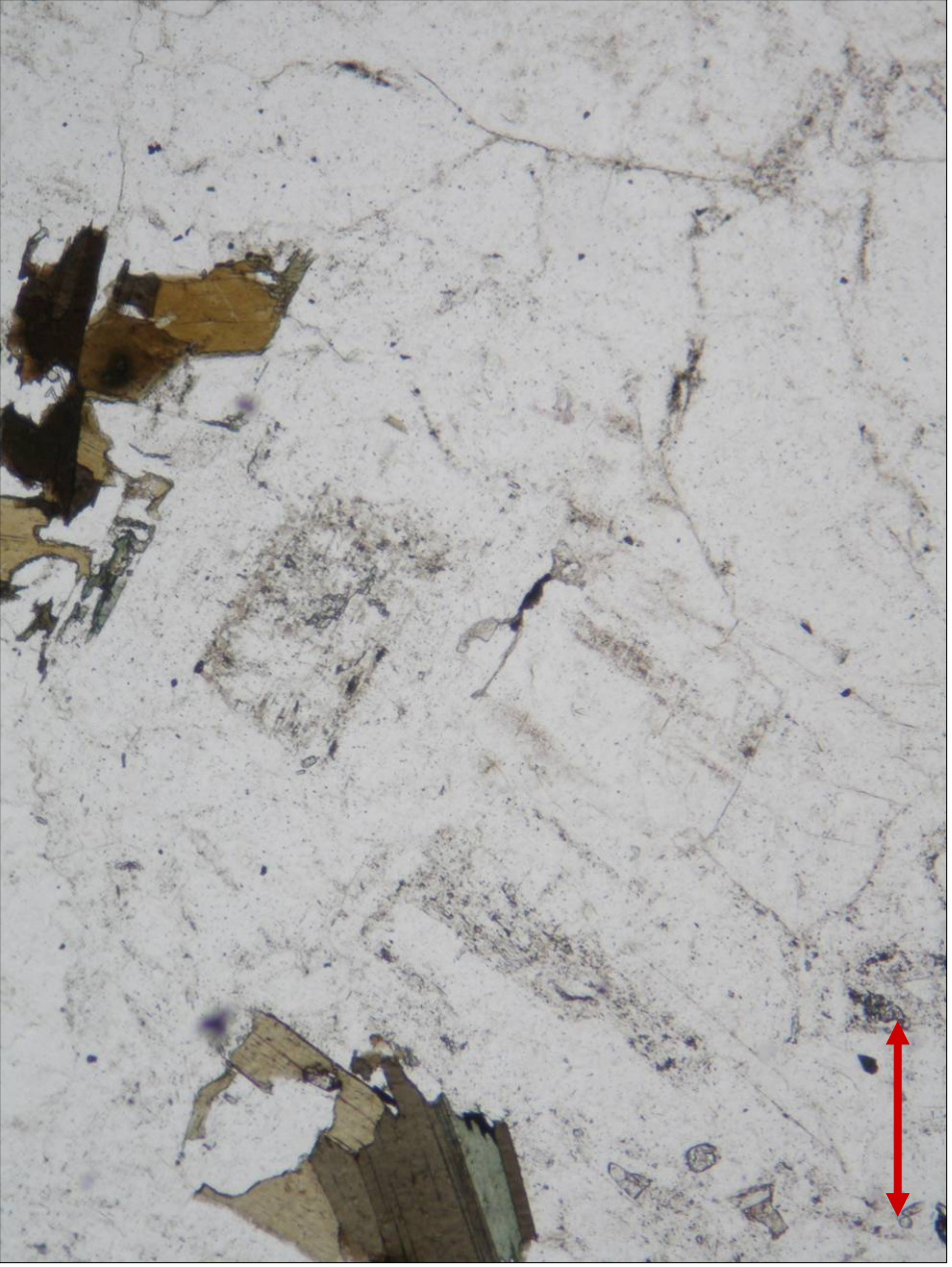


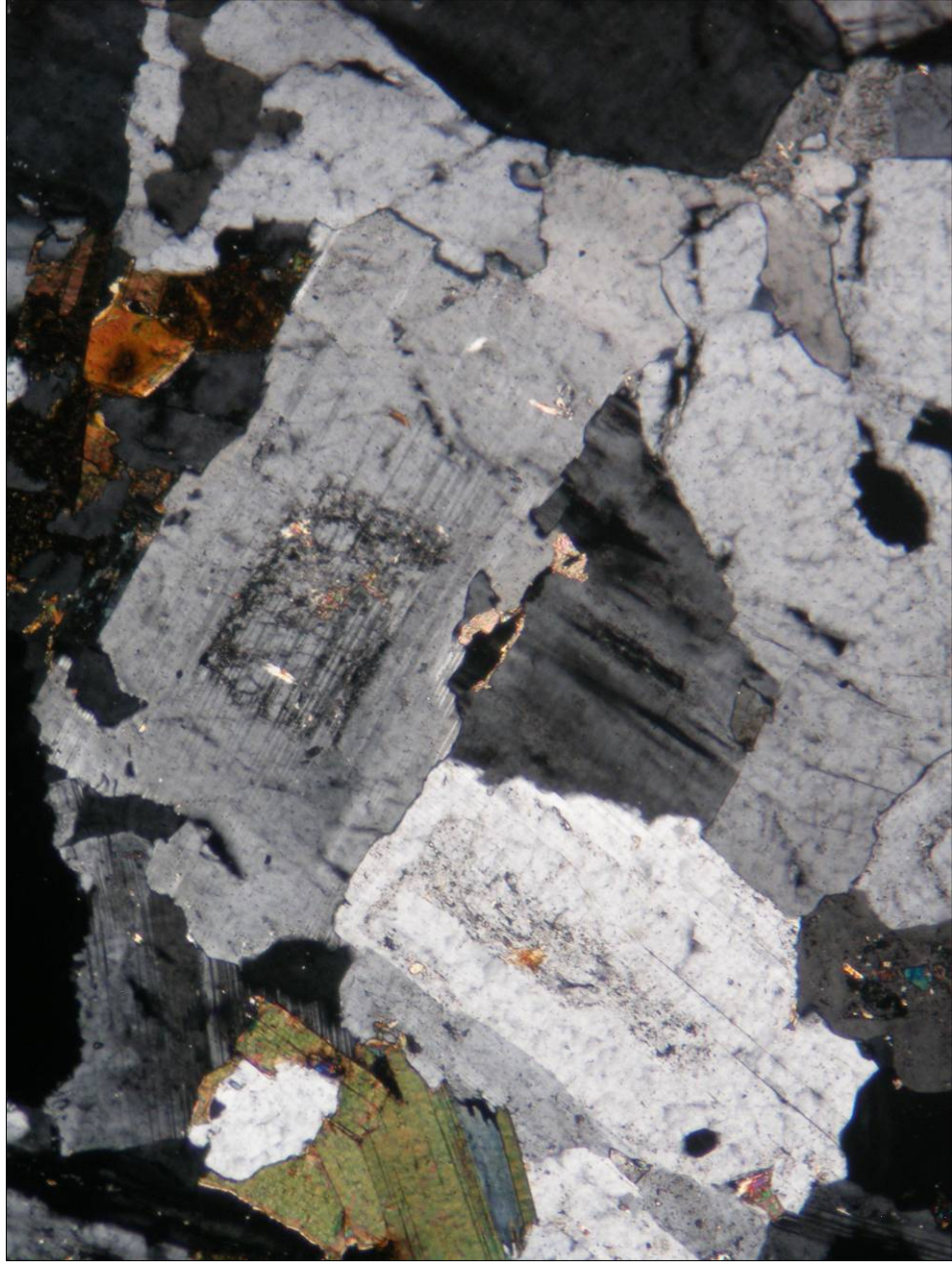


Zoned plagioclase in granite from Černá Voda, the Czech Republic; PPL (left) and XPL (right). Width of fields of view is ca. 1.7 mm. Photo: JiZi.

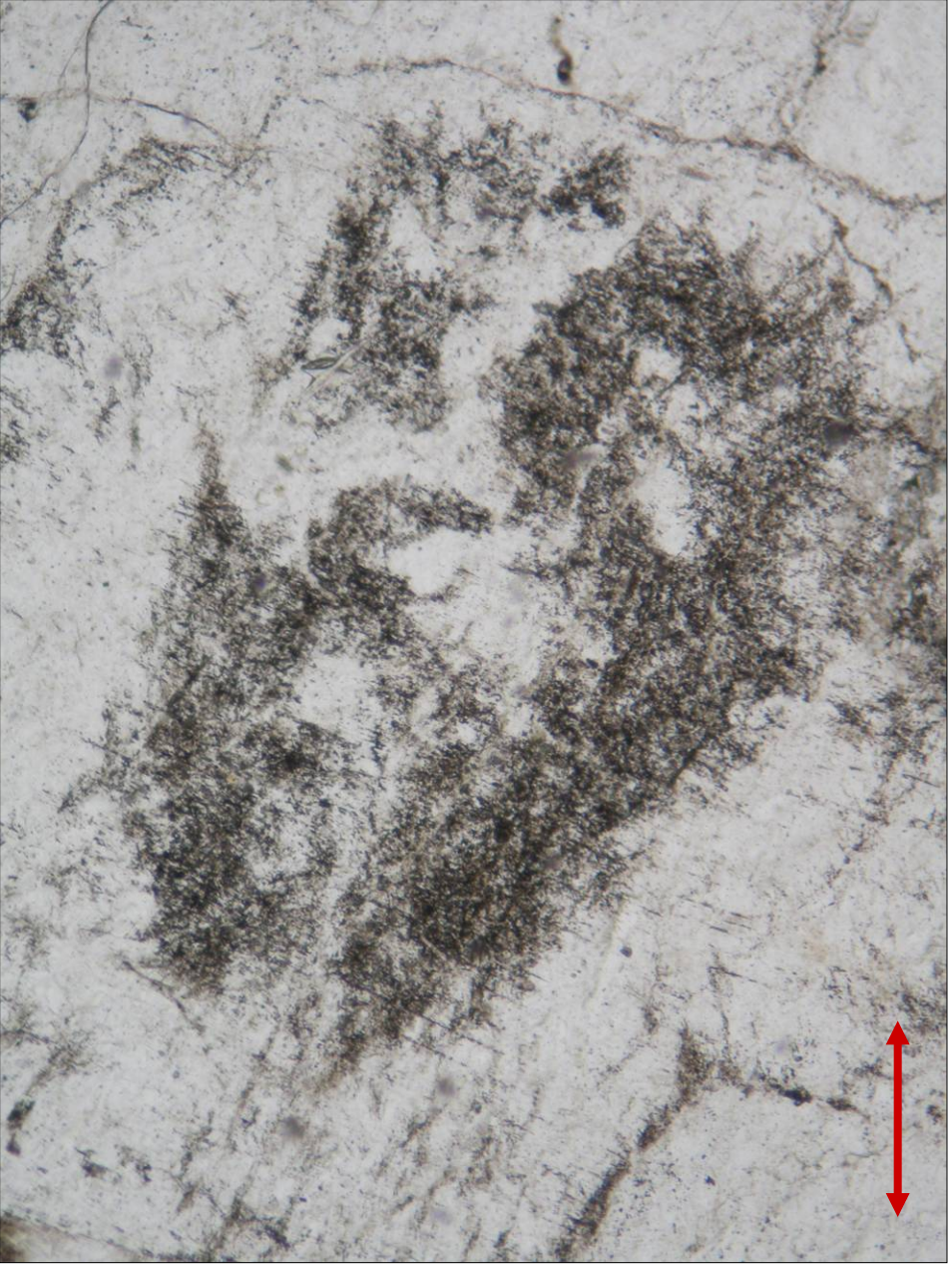


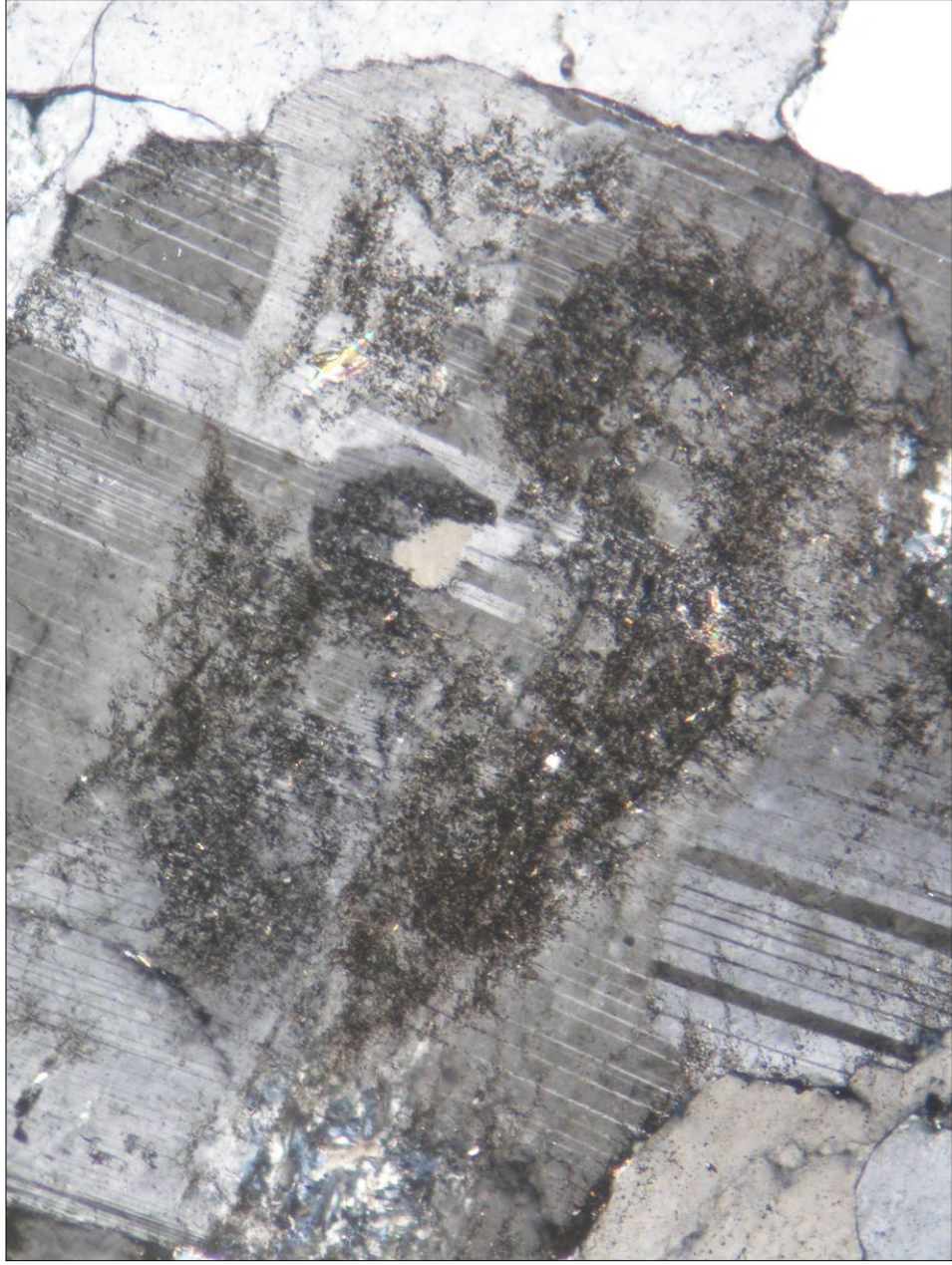
Altered plagioclase in granite from Černá Voda, the Czech Republic; PPL (left) and XPL (right). Width of fields of view is ca. 1.7 mm. Photo: JiZi.





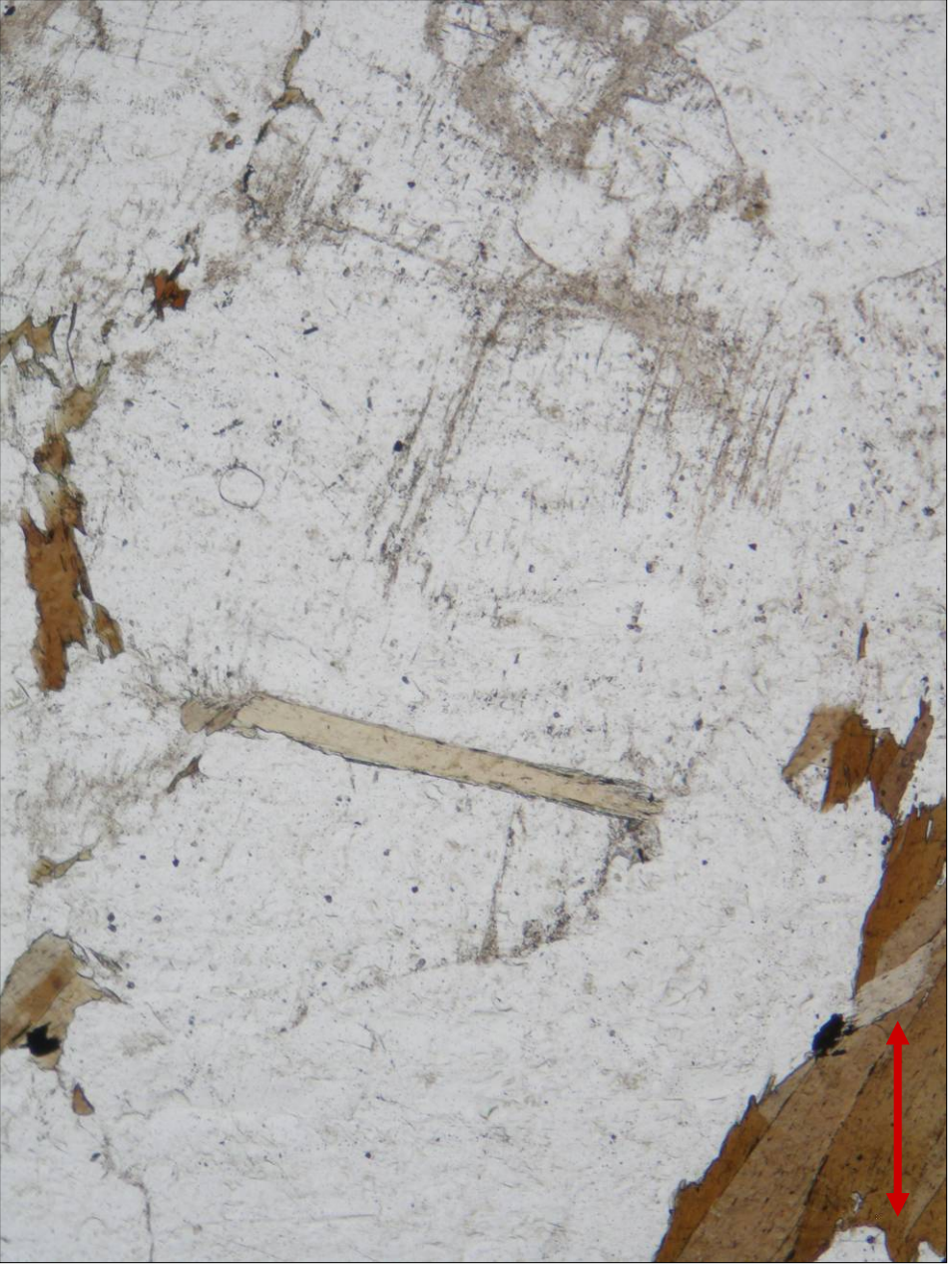
Zoned plagioclase and partly chloritized biotite in granite from Černá Voda, the Czech Republic; PPL (left) and XPL (right). Width of fields of view is ca. 1.7 mm. Photo: JiZi.



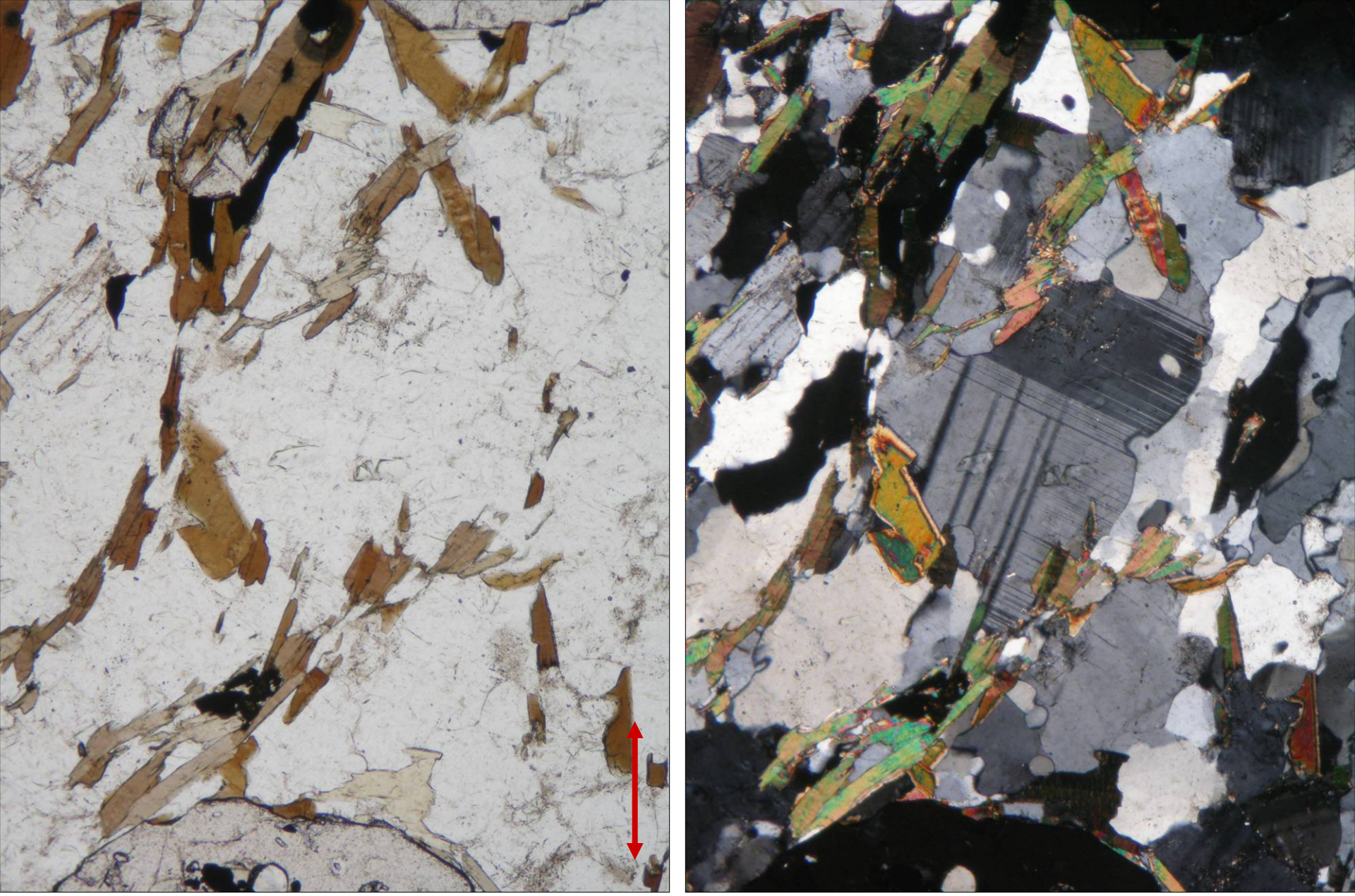


Altered plagioclase in granite from Liberec, the Czech Republic; PPL (left) and XPL (right). Width of fields of view is ca. 2.0 mm. Photo: JiZi

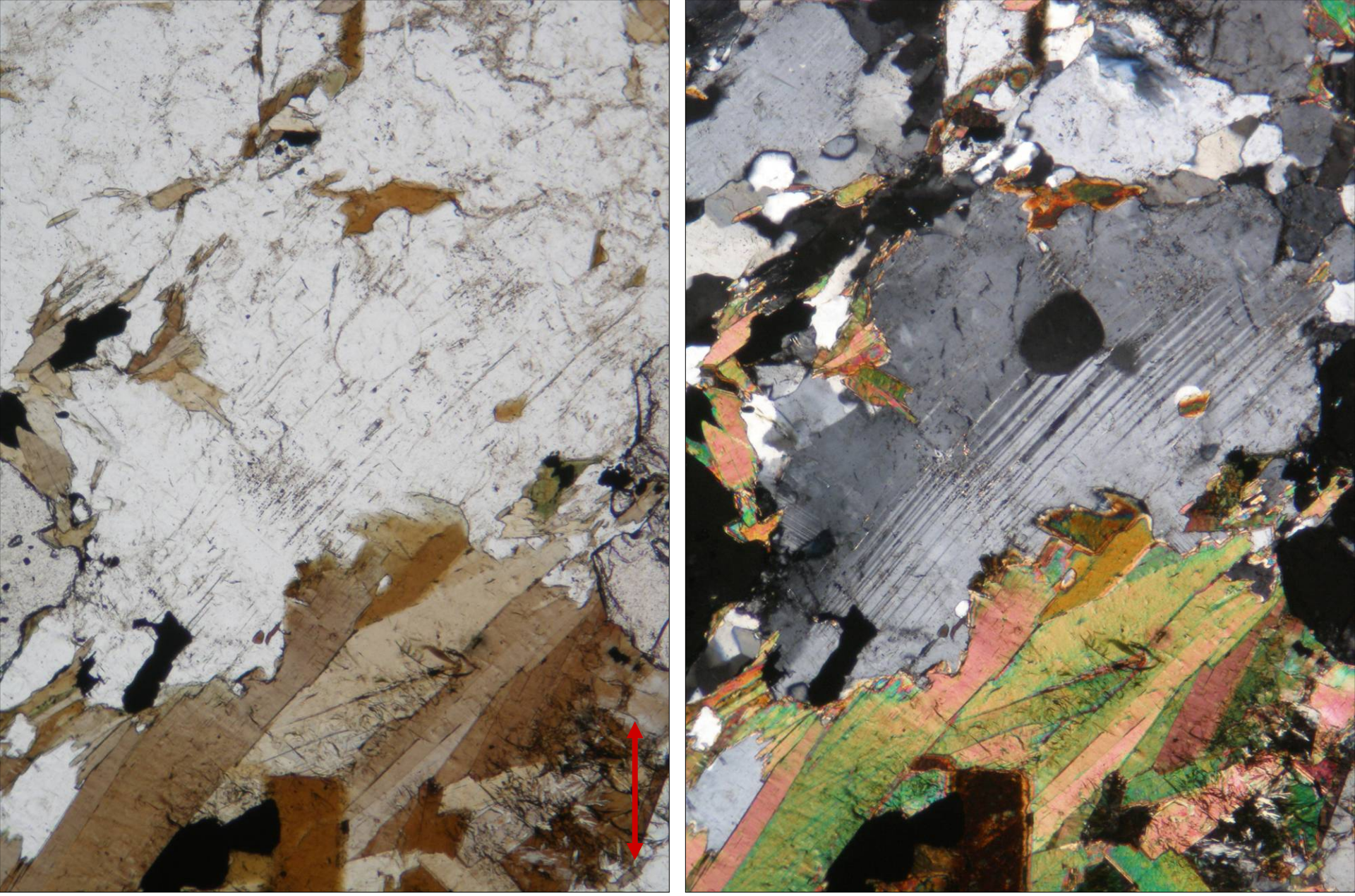
Zoned plagioclase in granite from Liberec, the Czech Republic; XPL. Field of view is ca. 2.3 mm wide. Photo: JiZi.



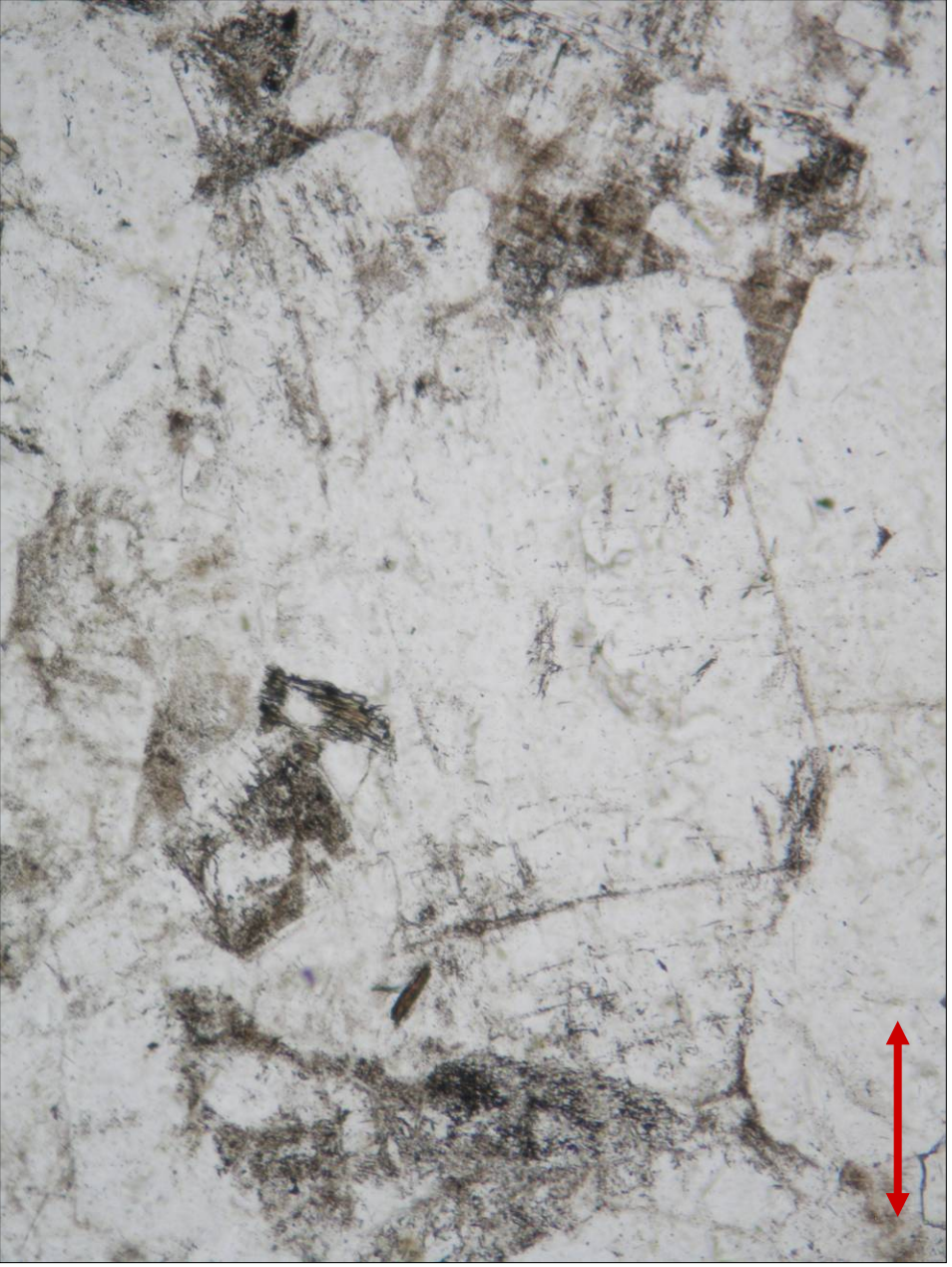
Plagioclase in paragneiss from Dolní Rožínka, the Czech Republic; PPL (left) and XPL (right). Width of fields of view is ca. 1.8 mm. Photo: JiZi.

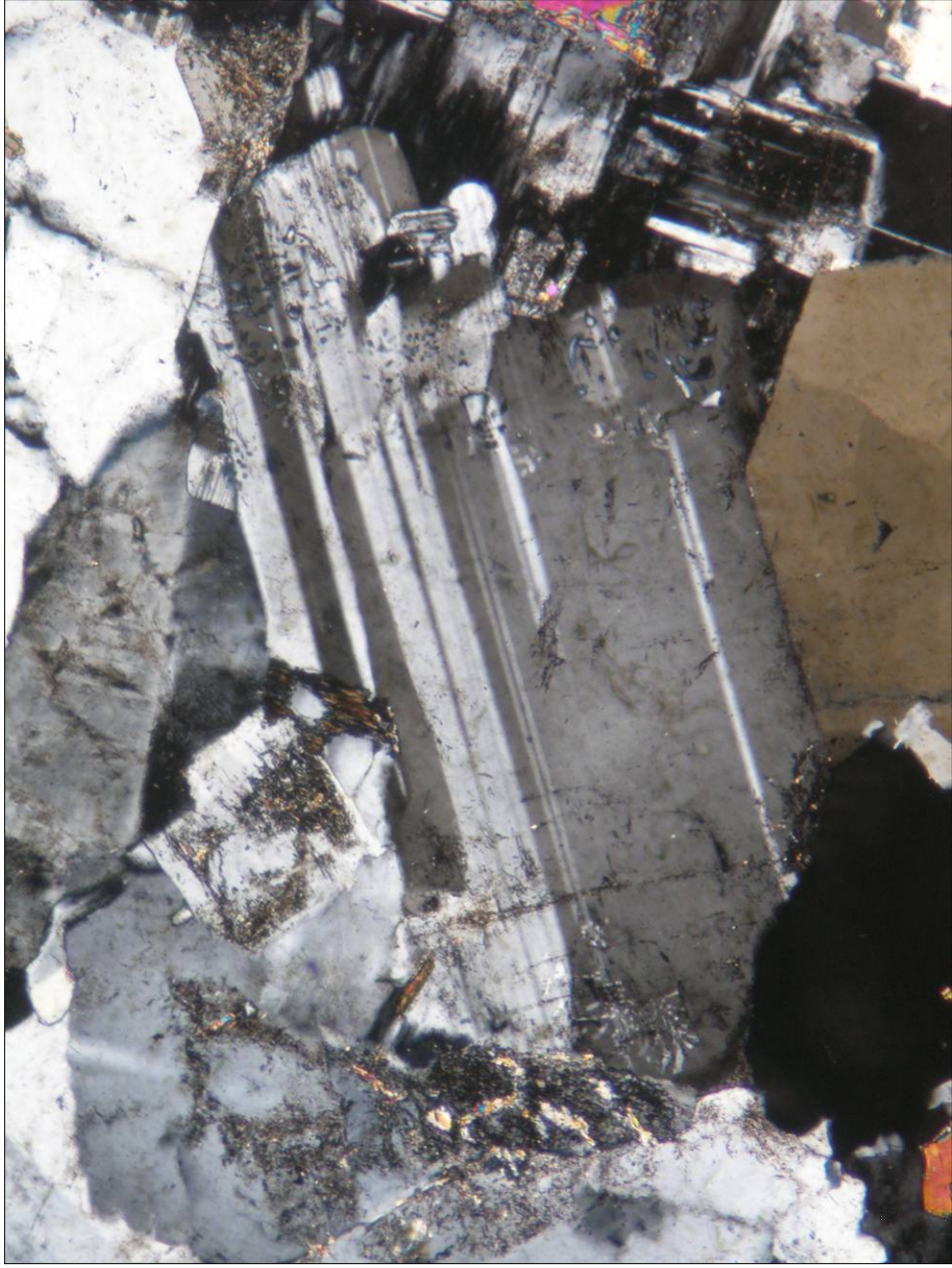


Plagioclase in paragneiss from Dolní Rožínka, the Czech Republic; PPL (left) and XPL (right). Width of fields of view is ca. 1.8 mm. Photo: JiZi.

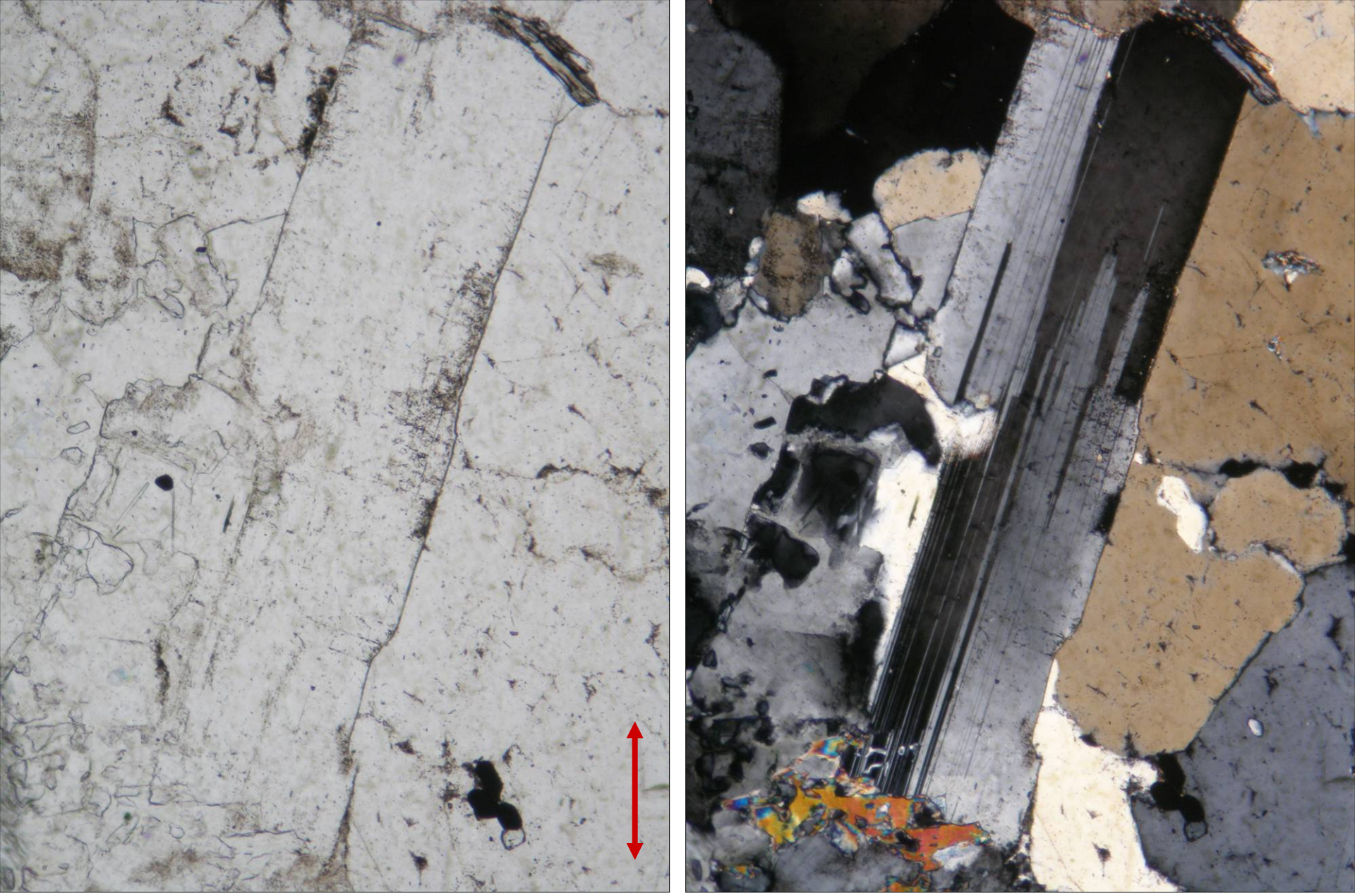


Plagioclase and biotite in paragneiss from Dolní Rožínka, the Czech Republic; PPL (left) and XPL (right). Width of fields of view is ca. 1.8 mm. Photo: JiZi.

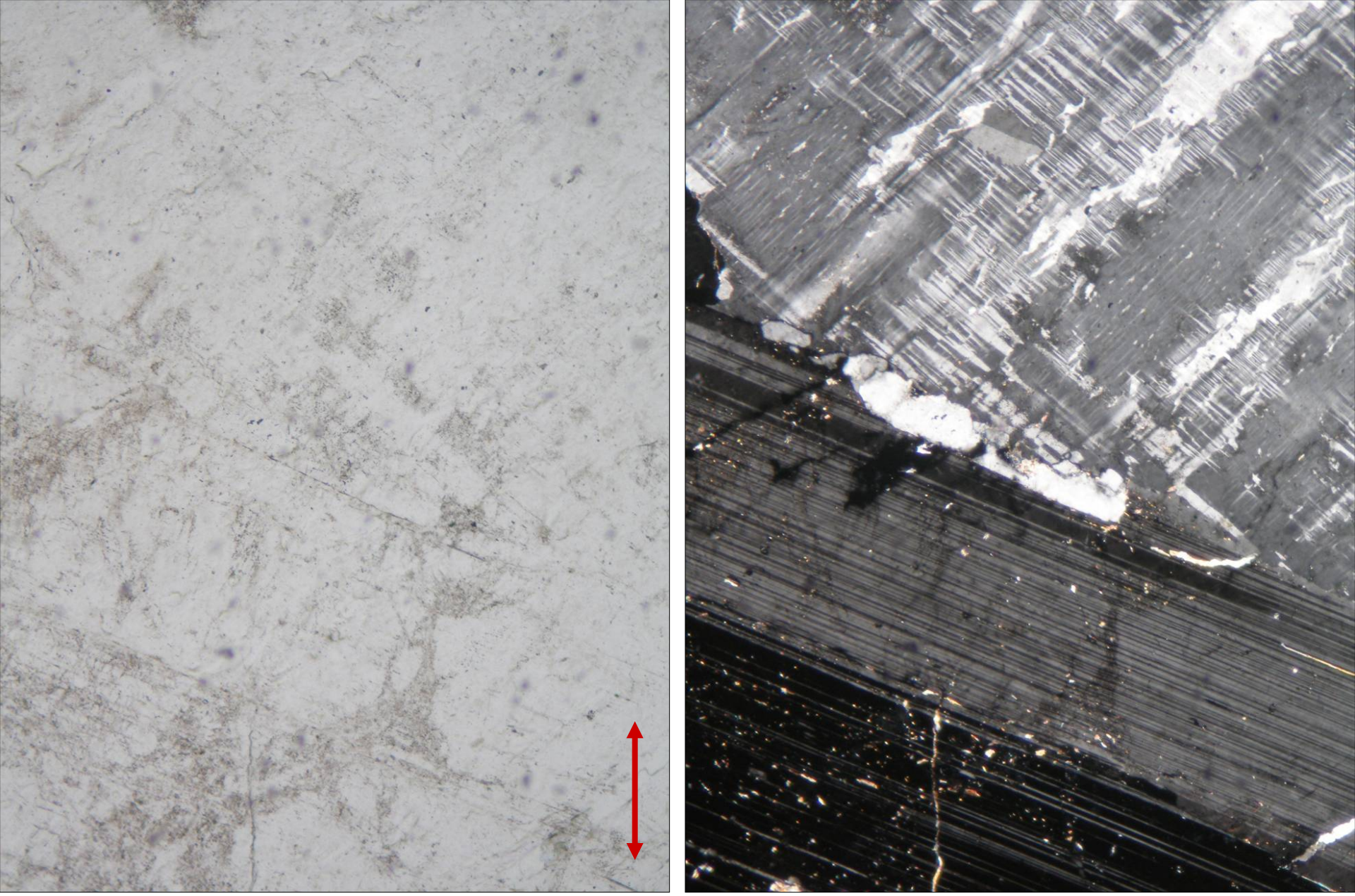




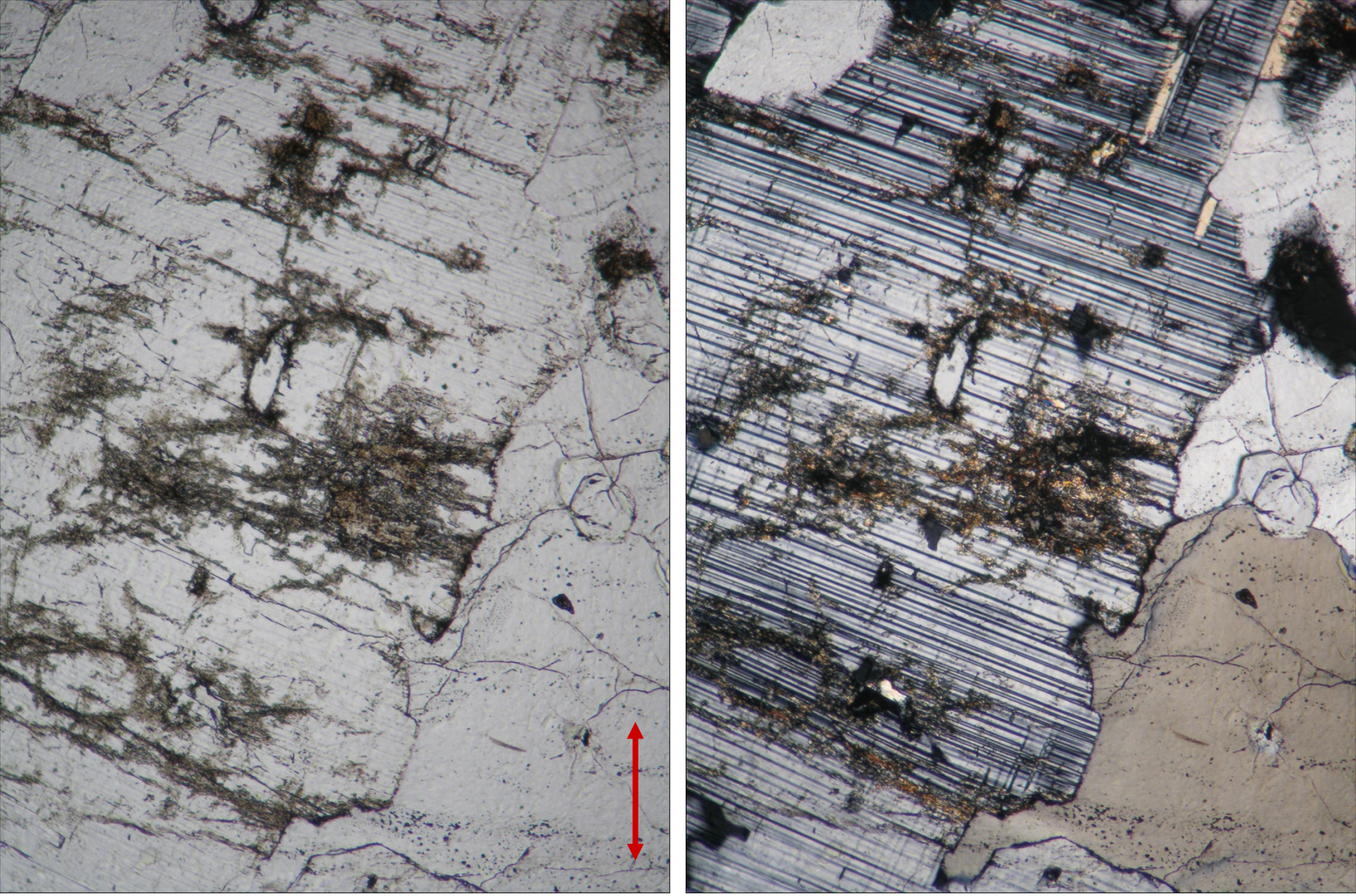
Plagioclase in granite from Mrákotín, the Czech Republic; PPL (left) and XPL (right). Width of fields of view is ca. 1.8 mm. Photo: JiZi.



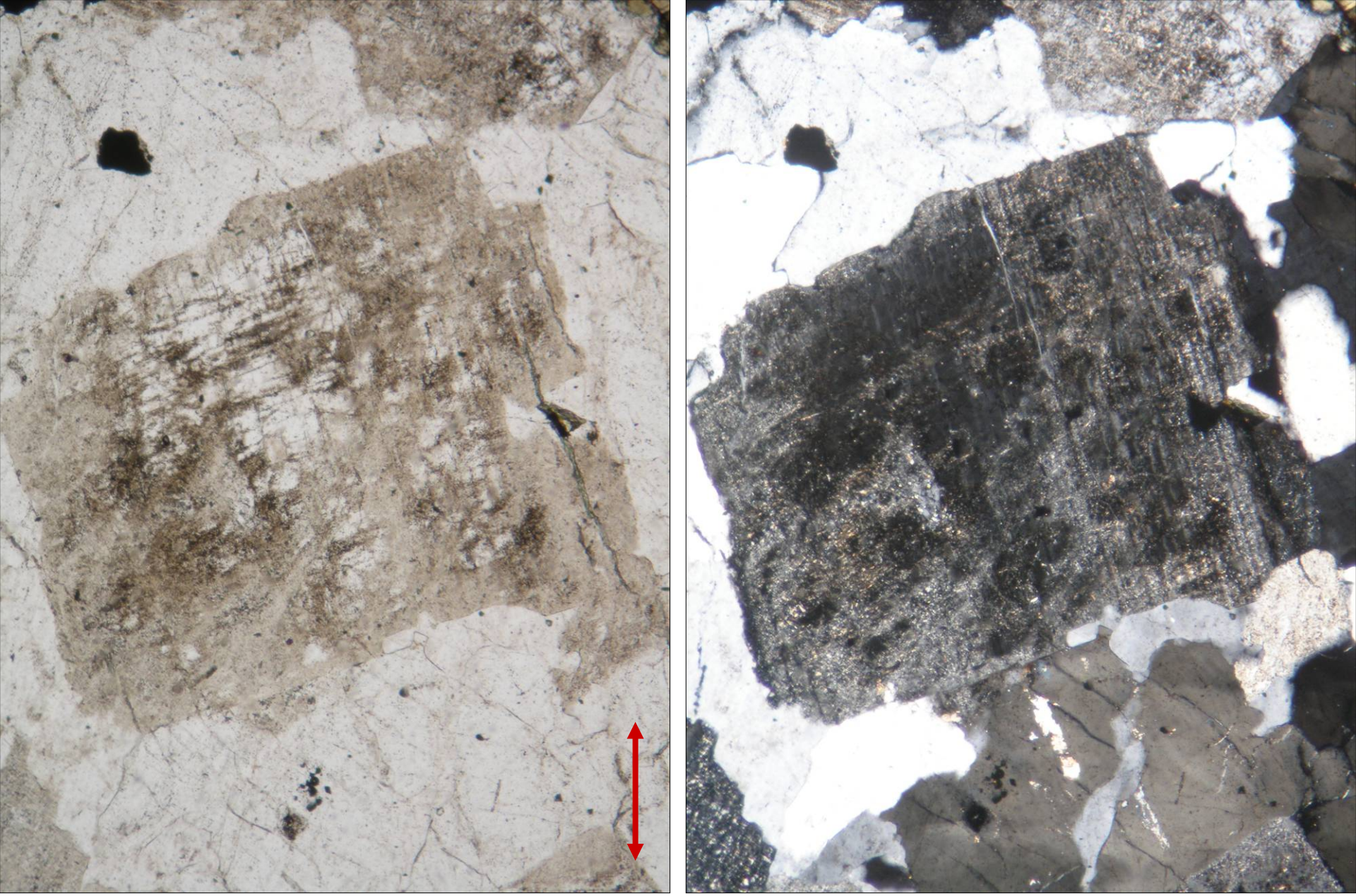
Plagioclase in granite from Mrákotín, the Czech Republic; PPL (left) and XPL (right). Width of fields of view is ca. 1.8 mm. Photo: JiZi.



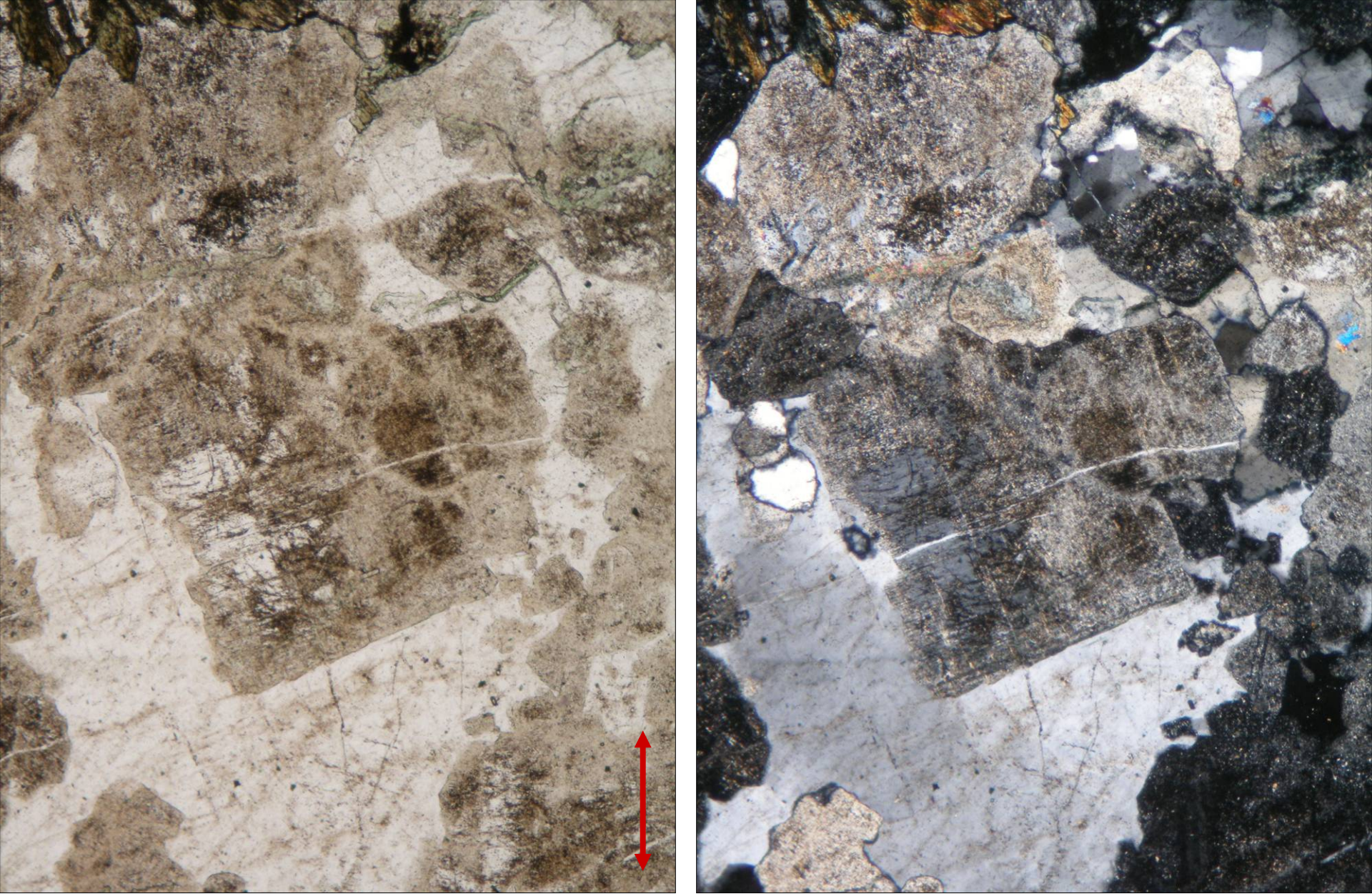
Plagioclase and perthitic microcline in pegmatite from Černá Voda, the Czech Republic; PPL (left) and XPL (right). Width of fields of view is ca. 1.5 mm. Photo: JiZi.



Plagioclase and quartz in pegmatite from Ruda nad Moravou, the Czech Republic; PPL (left) and XPL (right). Width of fields of view is ca. 1.8 mm. Photo: JiZi.

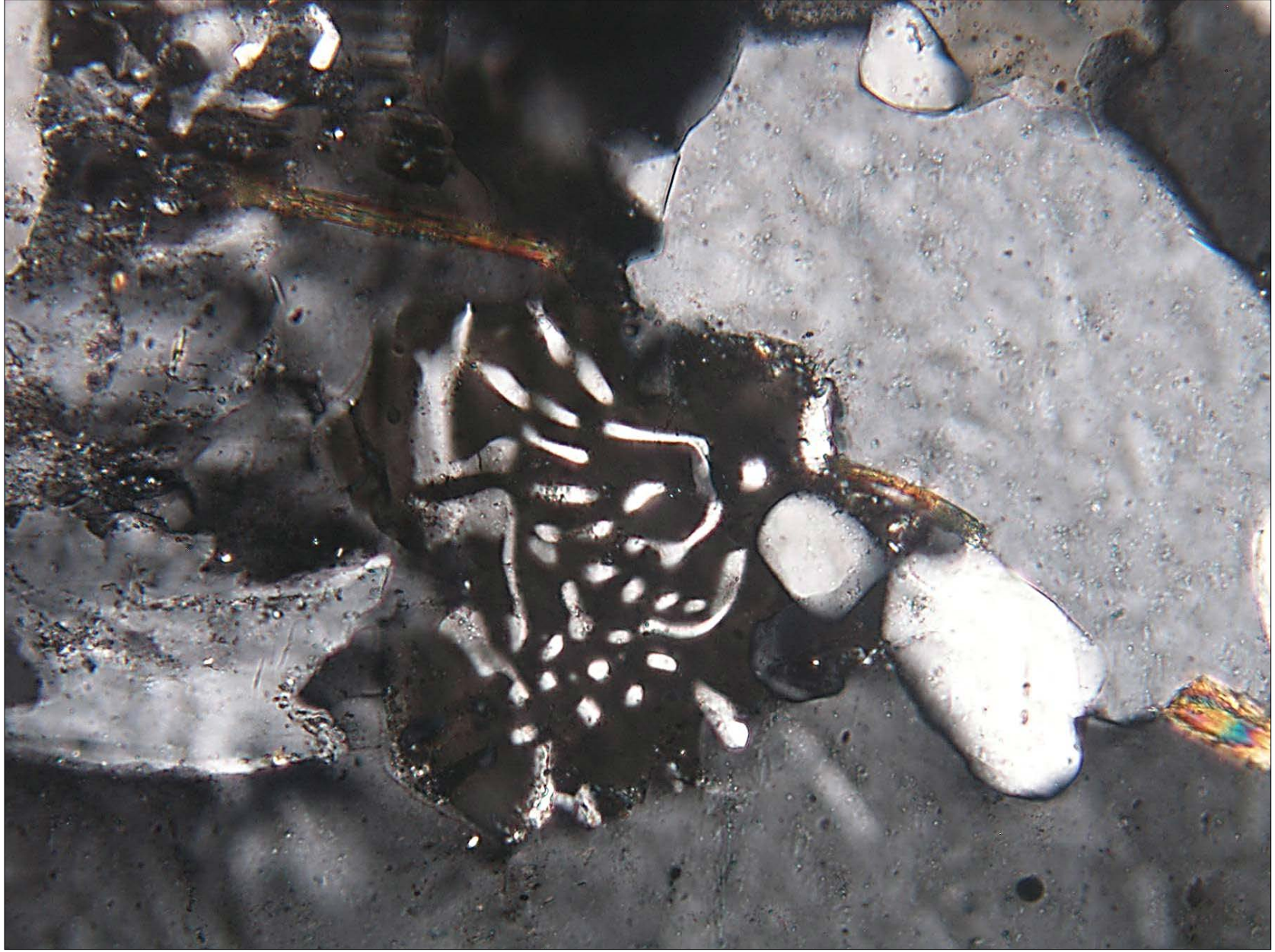


Partly altered plagioclase surrounded by quartz in granodiorite from Brno-Obřany, the Czech Republic; PPL (left) and XPL (right). Width of fields of view is ca. 1.5 mm. Photo: JiZi.

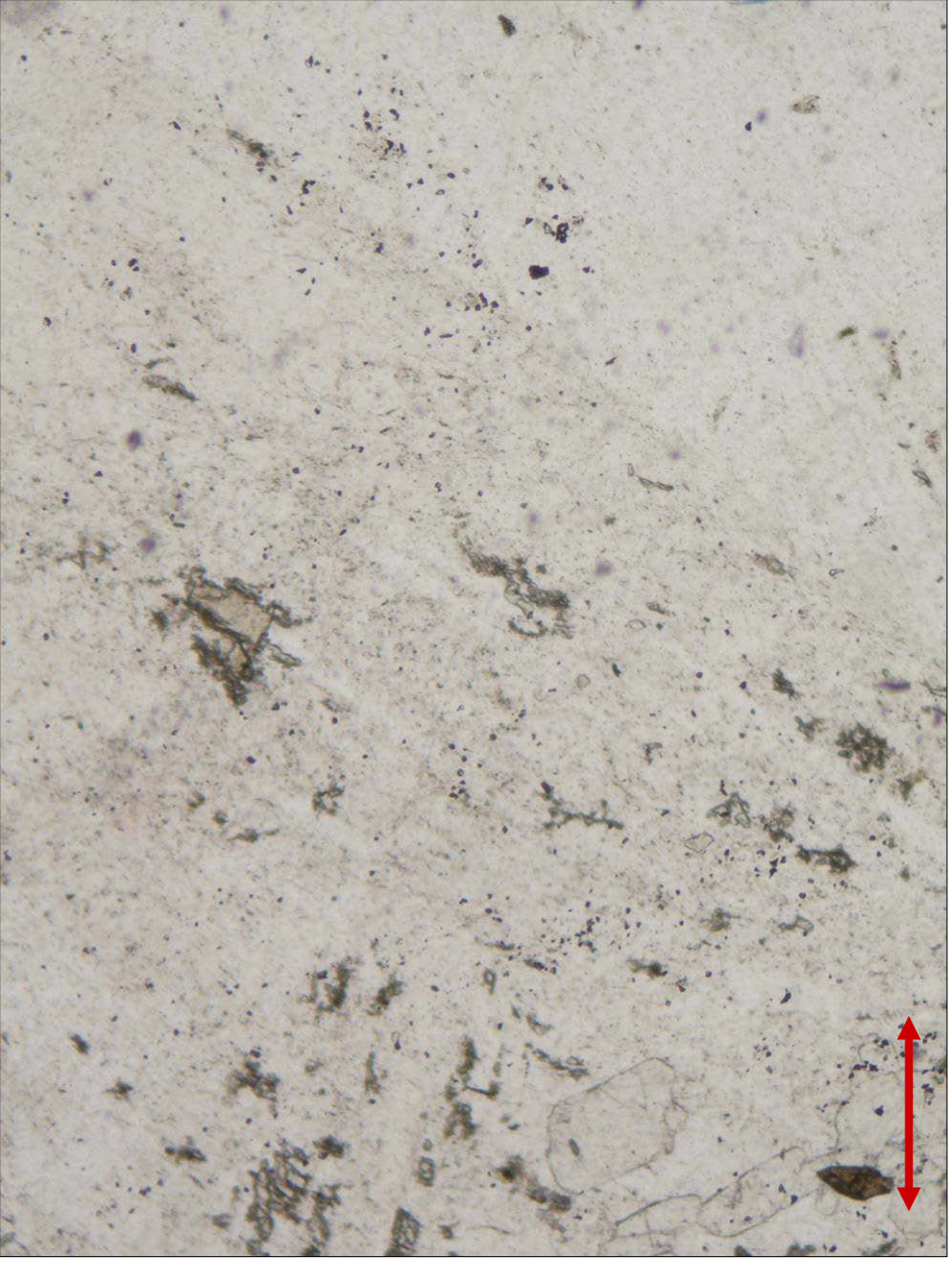


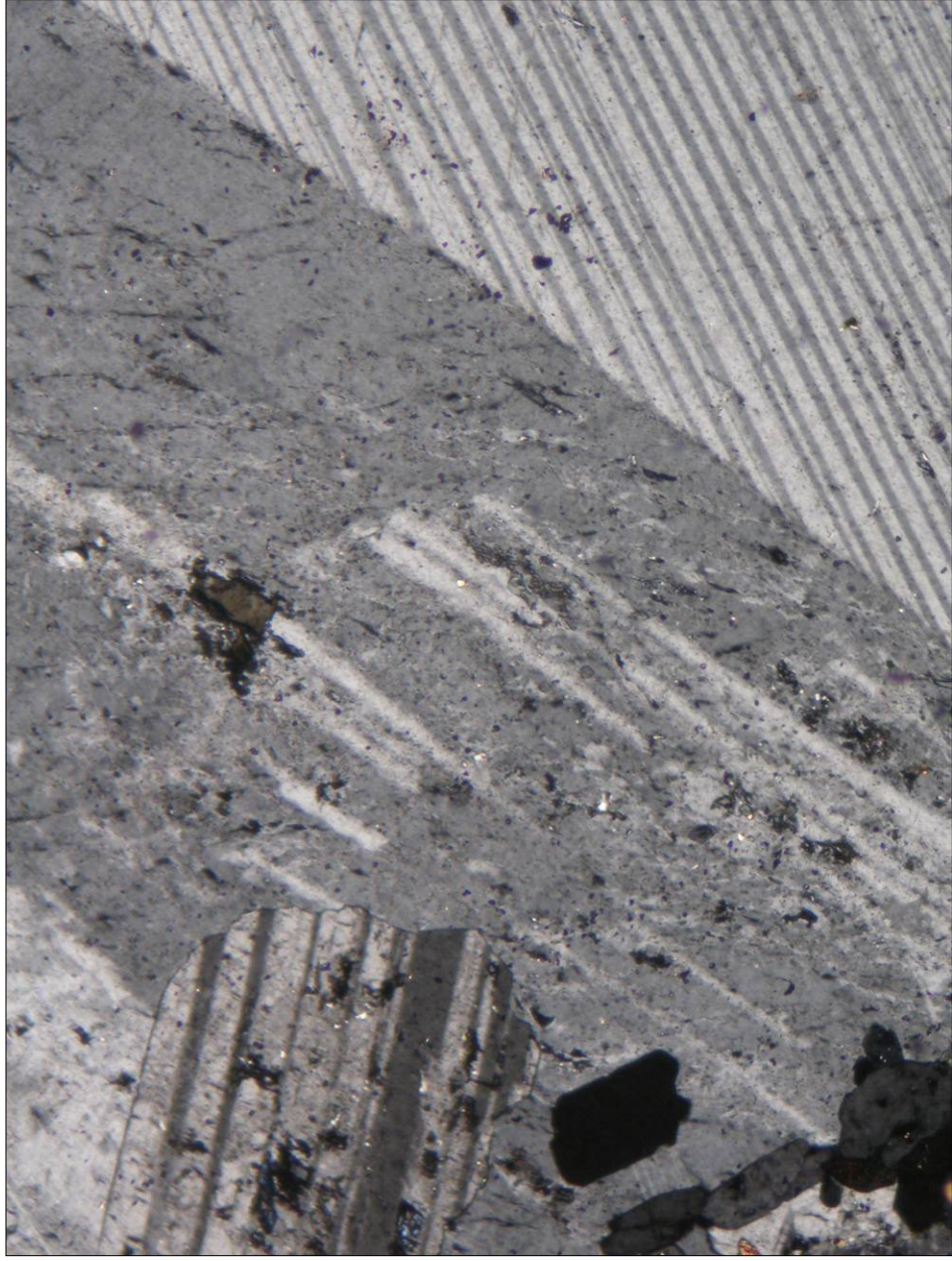
Plagioclase (partly altered to clay) surrounded by quartz in granodiorite from Brno-Obřany, the Czech Republic; PPL (left) and XPL (right). Width of fields of view is ca. 1.5 mm. Photo: JiZi.

Altered plagioclase in granodiorite from Blansko, the Czech Republic; PPL (left) and XPL (right). Width of fields of view is ca. 1.5 mm. Photo: JiZi.

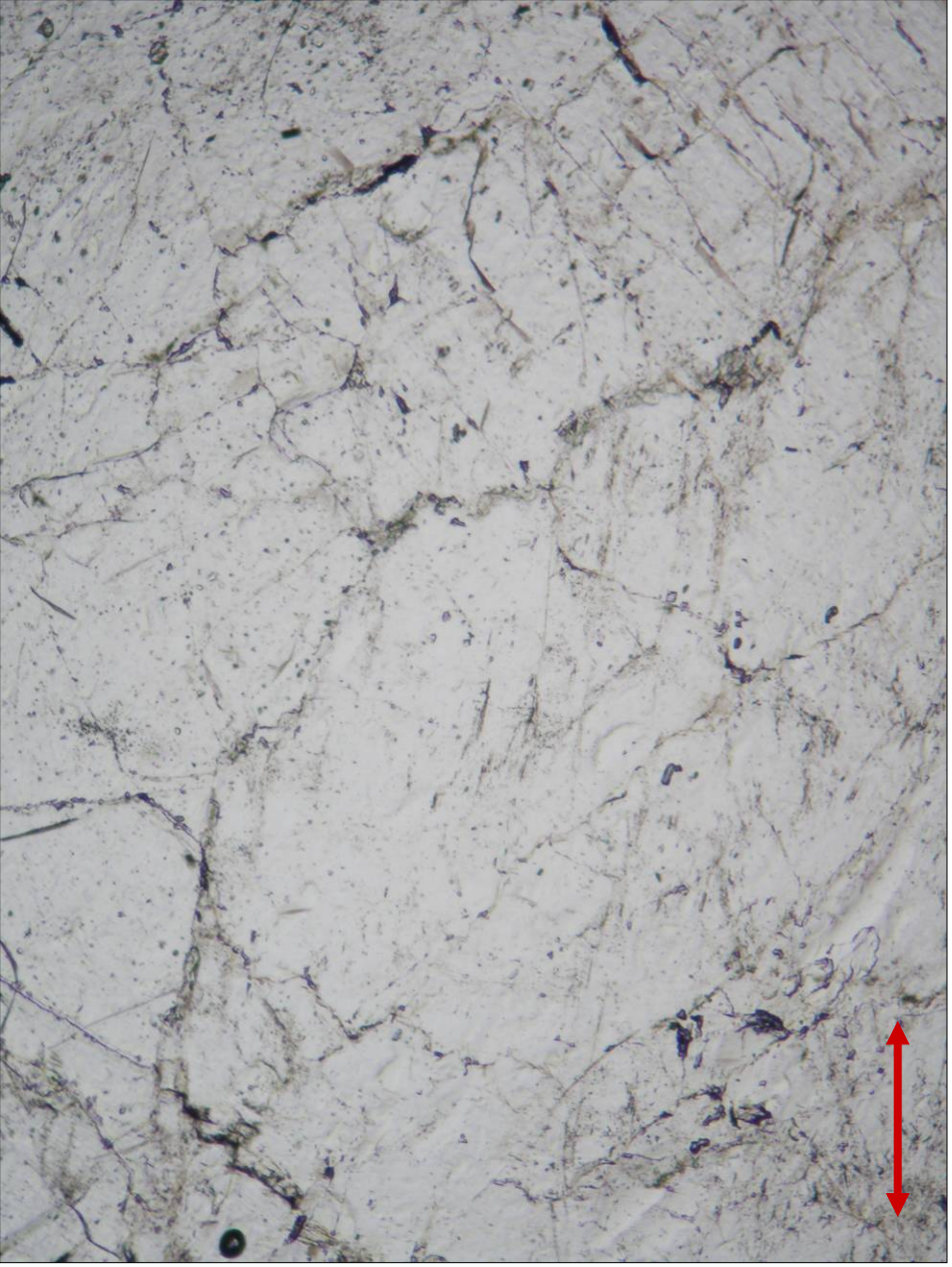


Myrmekite (made of a intergrowth of vermicular quartz in plagioclase) in gneiss from Horní Hoštice, the Czech Republic; XPL. Width of the field of view is ca. 0.4 mm. Photo: JiZi.

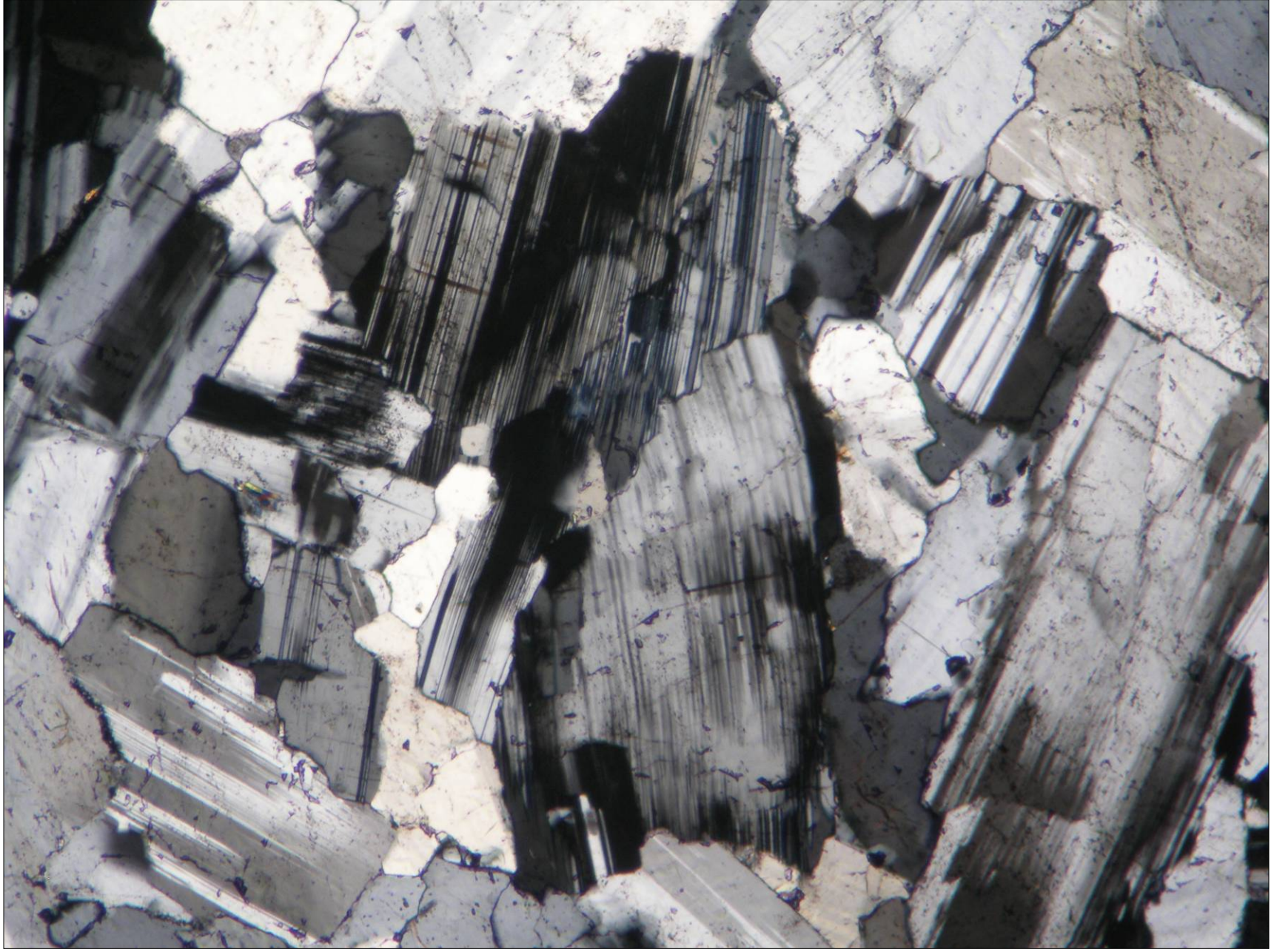




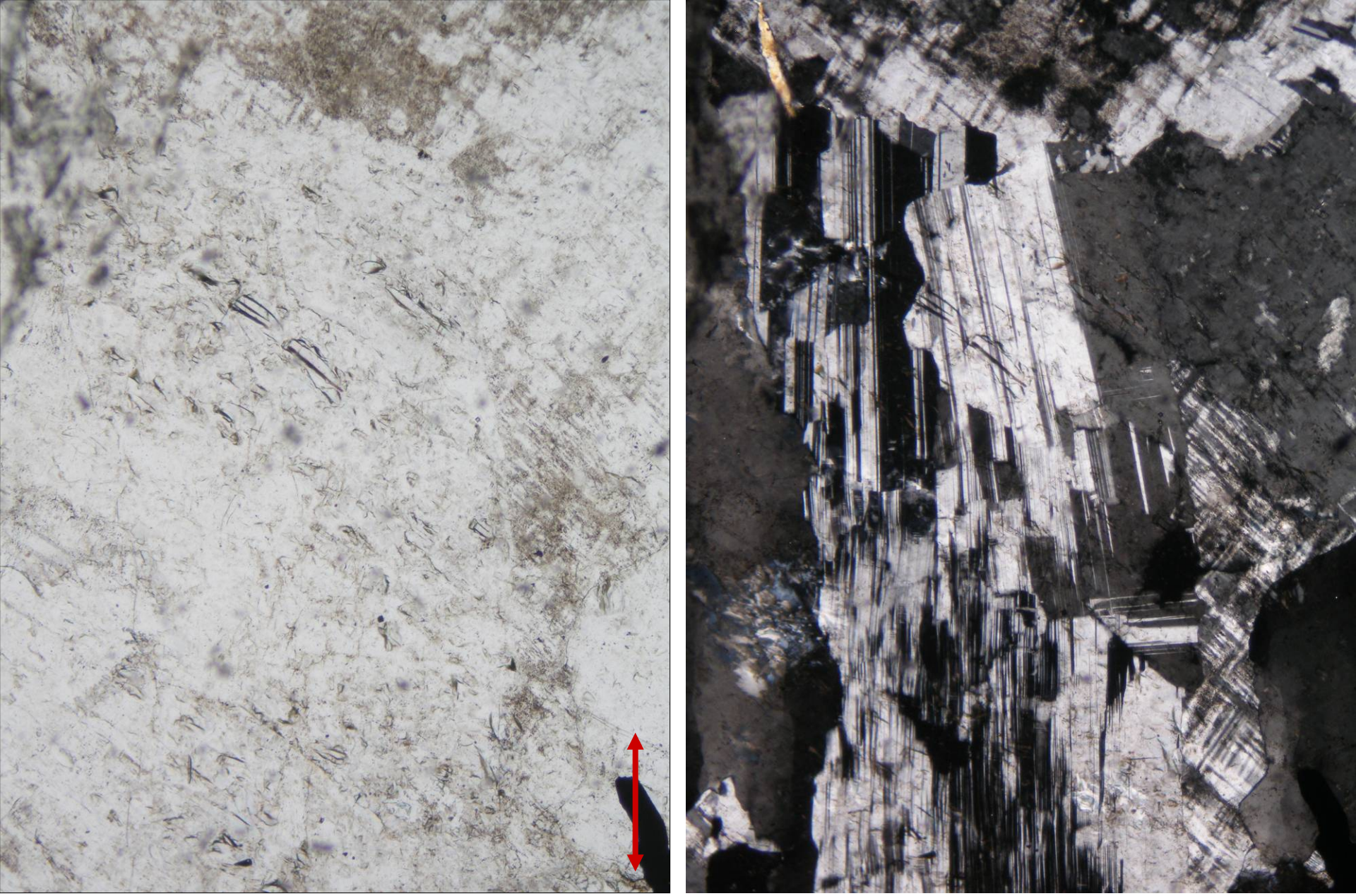
Plagioclase in pegmatite from Žulová, the Czech Republic; PPL (left) and XPL (right). Width of fields of view is ca. 1.2 mm. Photo: JiZi.



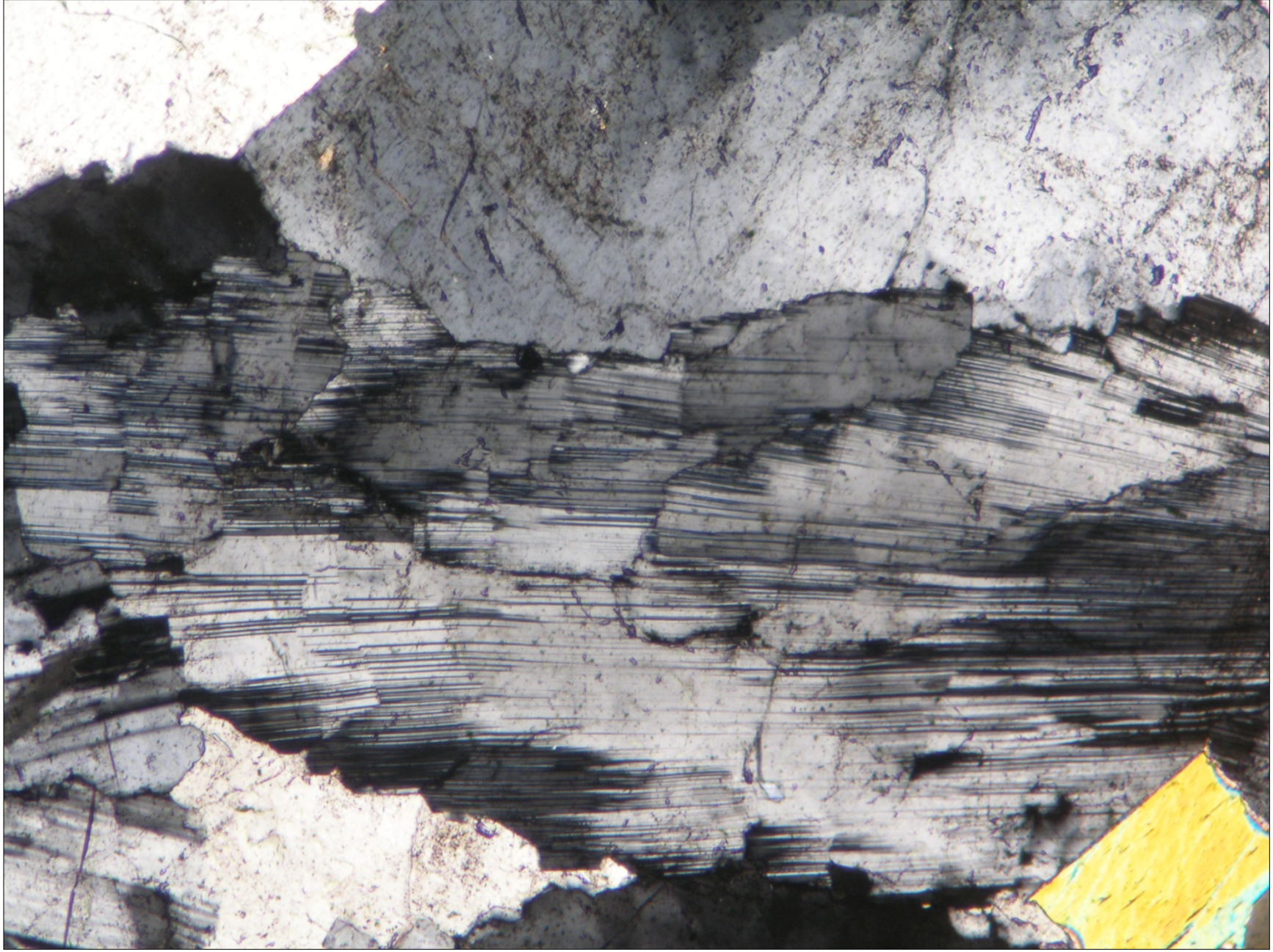
Plagioclase (albite) in pegmatite from Maršíkov, the Czech Republic; PPL (left) and XPL (right). Width of fields of view is ca. 1.8 mm. Photo: JiZi.



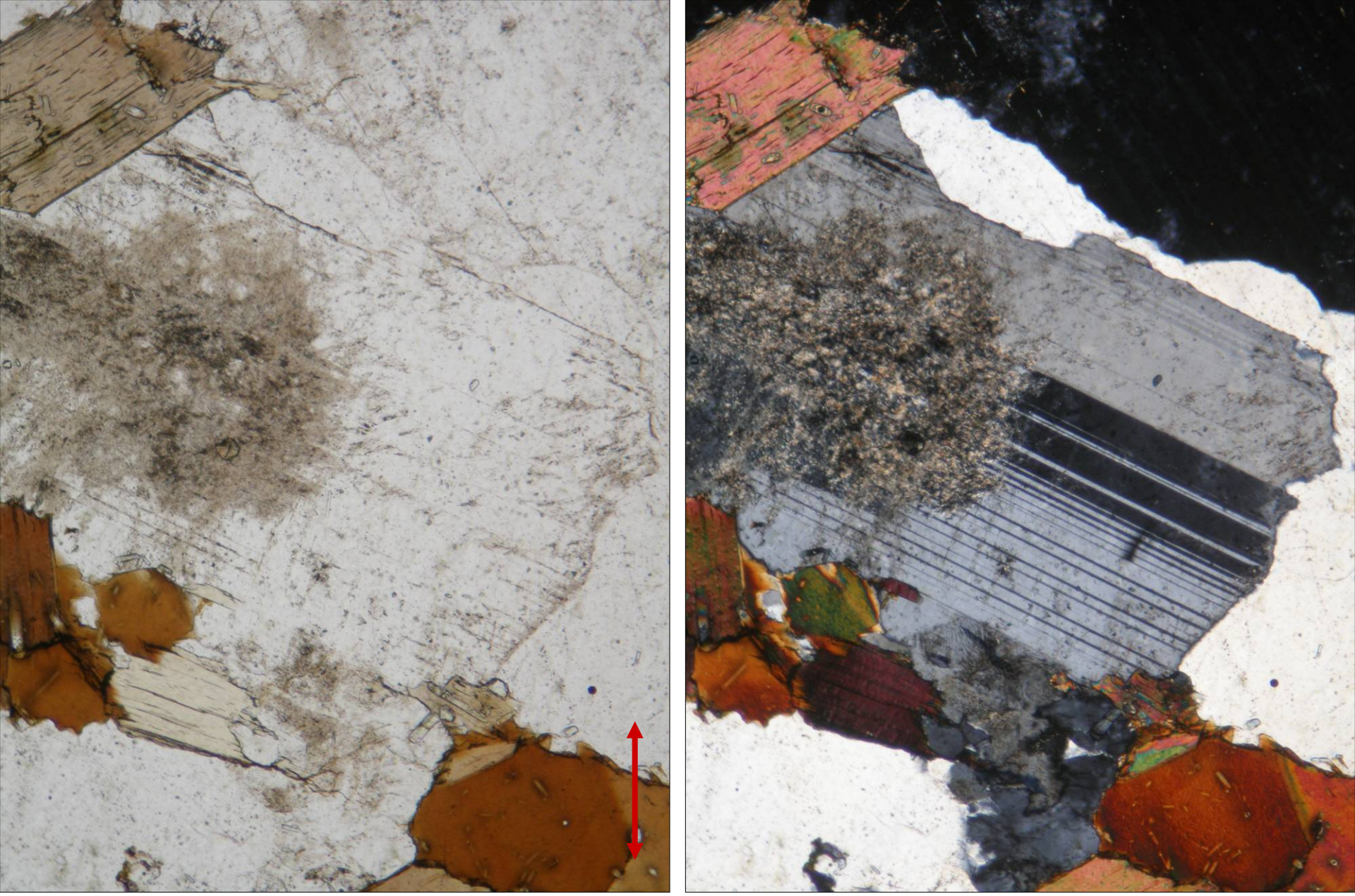
Plagioclase (albite) in pegmatite from Maršíkov, the Czech Republic; XPL. Field of view is ca. 2.2 mm wide. Photo: JiZi.



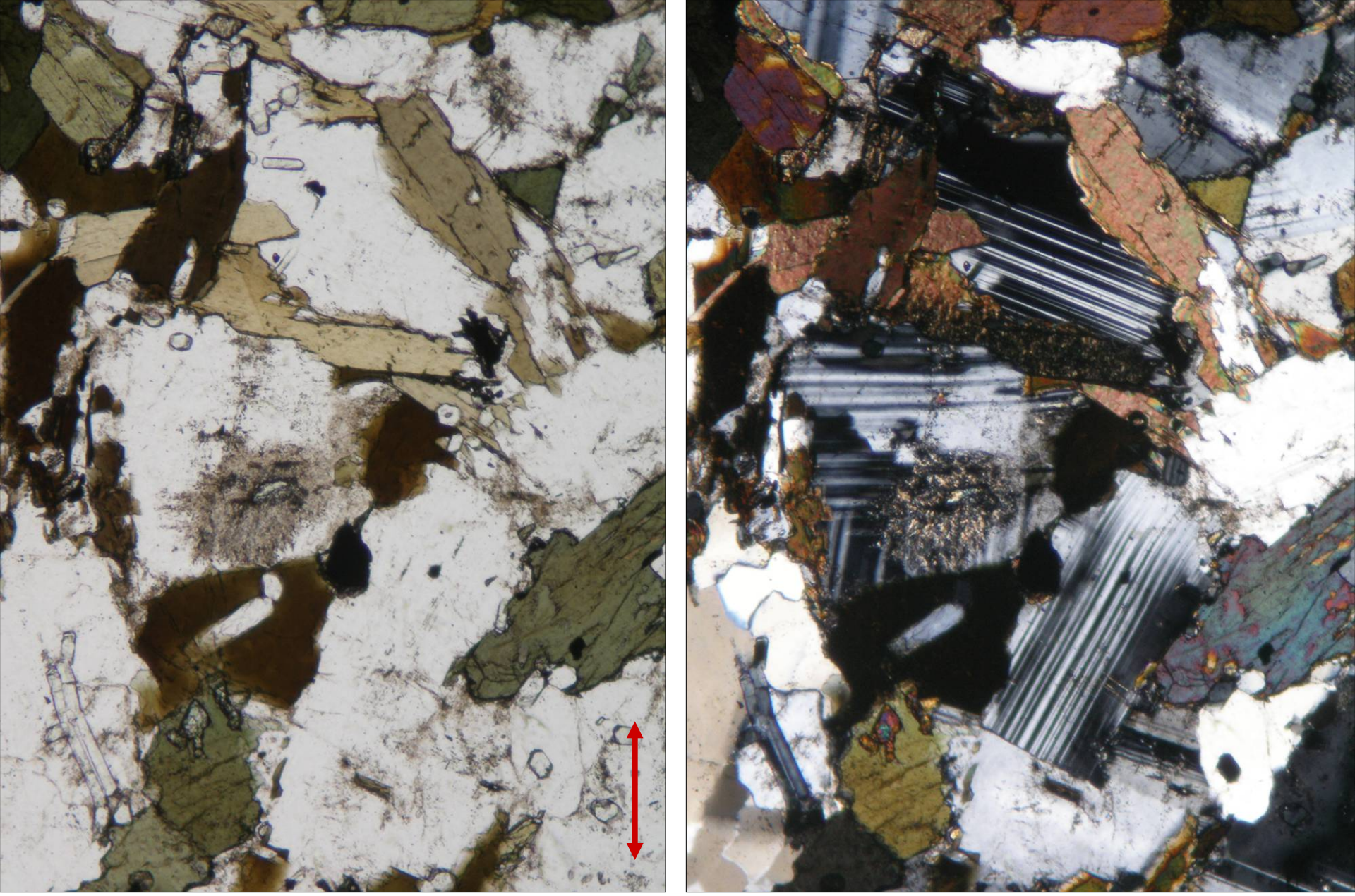
Plagioclase (albite) in pegmatite from Maršíkov, the Czech Republic; PPL (left) and XPL (right). Width of fields of view is ca. 1.5 mm. Photo: JiZi.



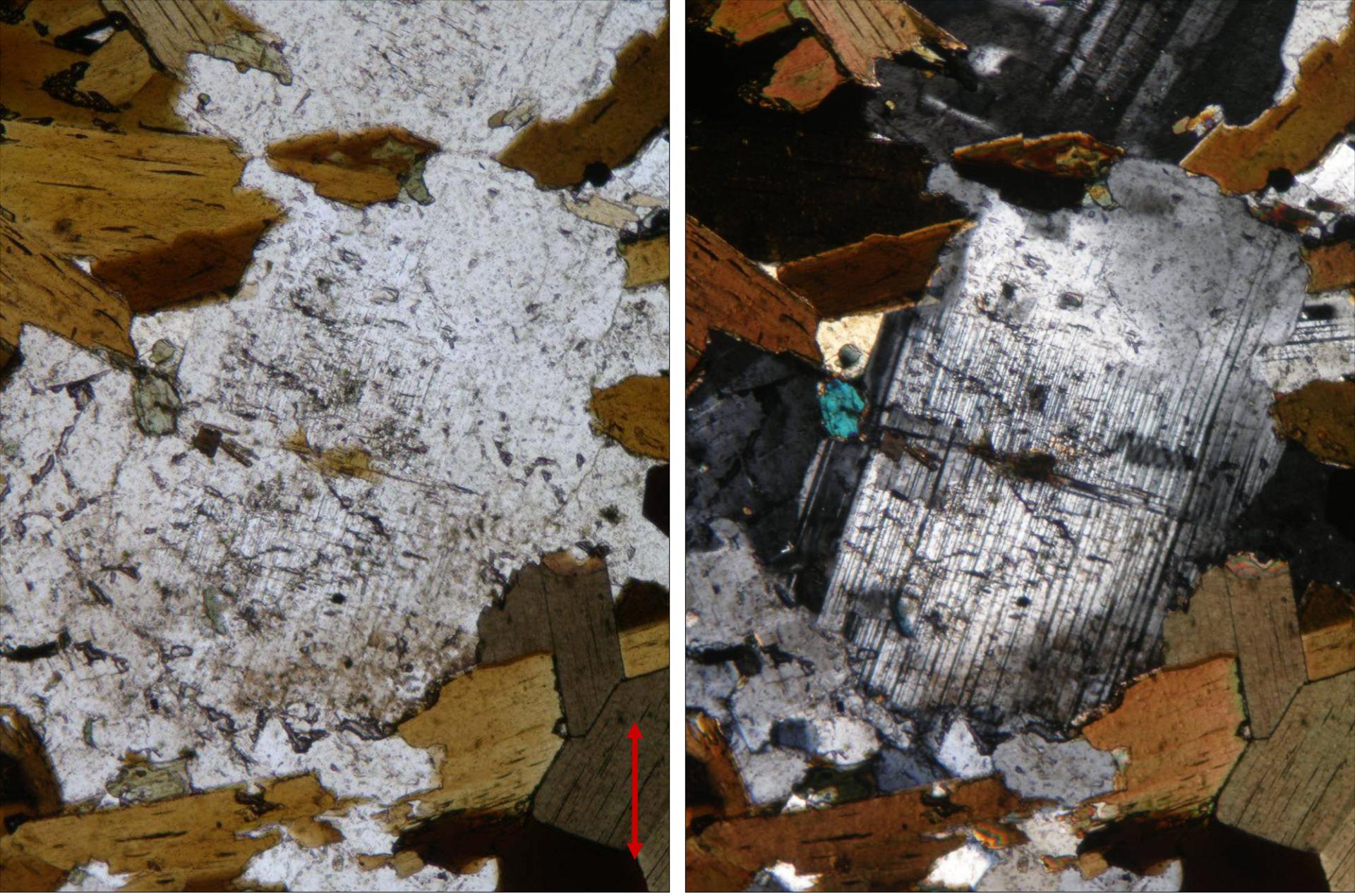
Plagioclase (albite) in pegmatite from Maršíkov, the Czech Republic; XPL. Field of view is ca. 2.0 mm wide. Photo: JiZi.



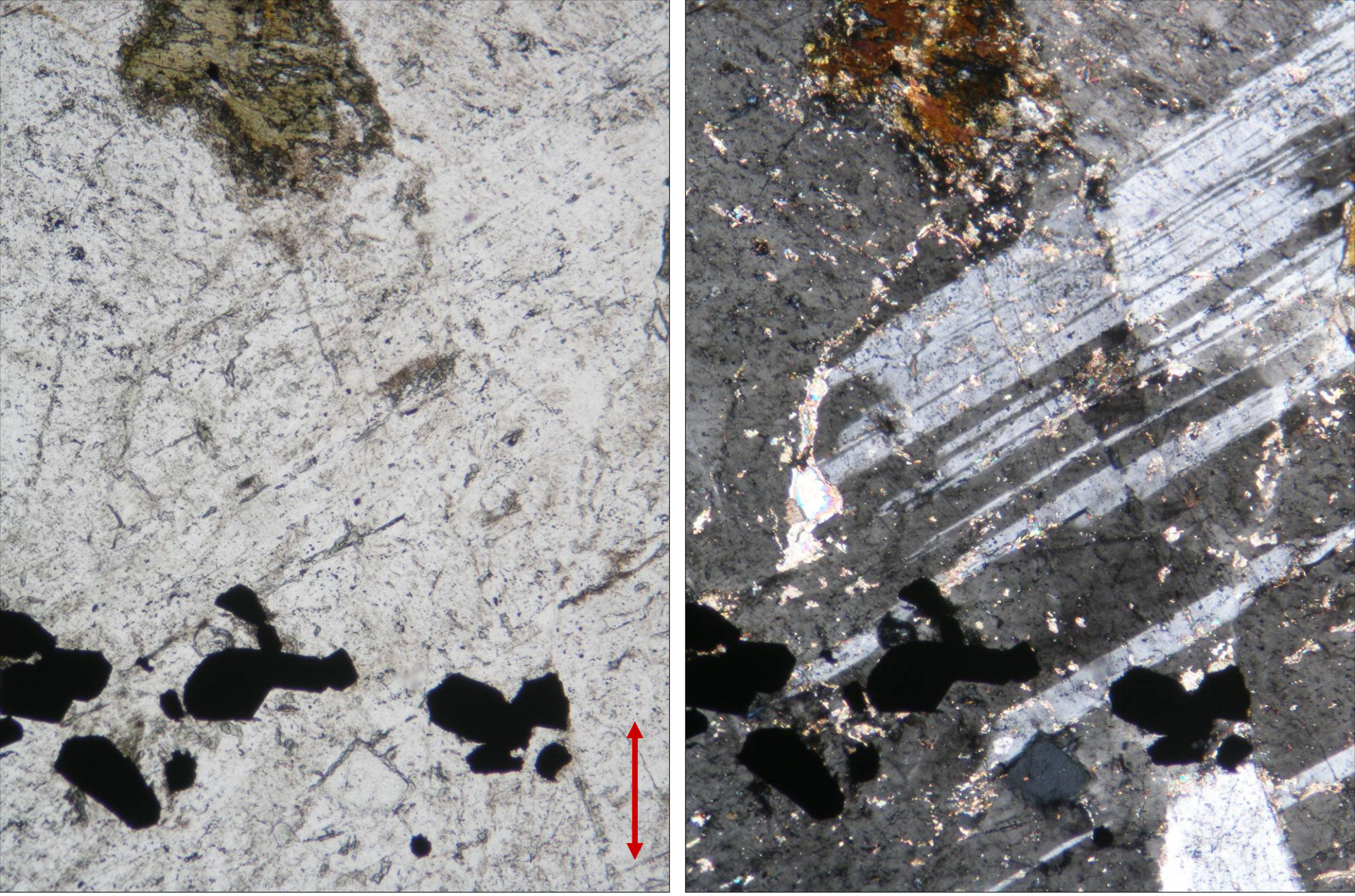
Plagioclase in syenite from Tasov, the Czech Republic; PPL (left) and XPL (right). Width of fields of view is ca. 1.7 mm. Photo: JiZi.



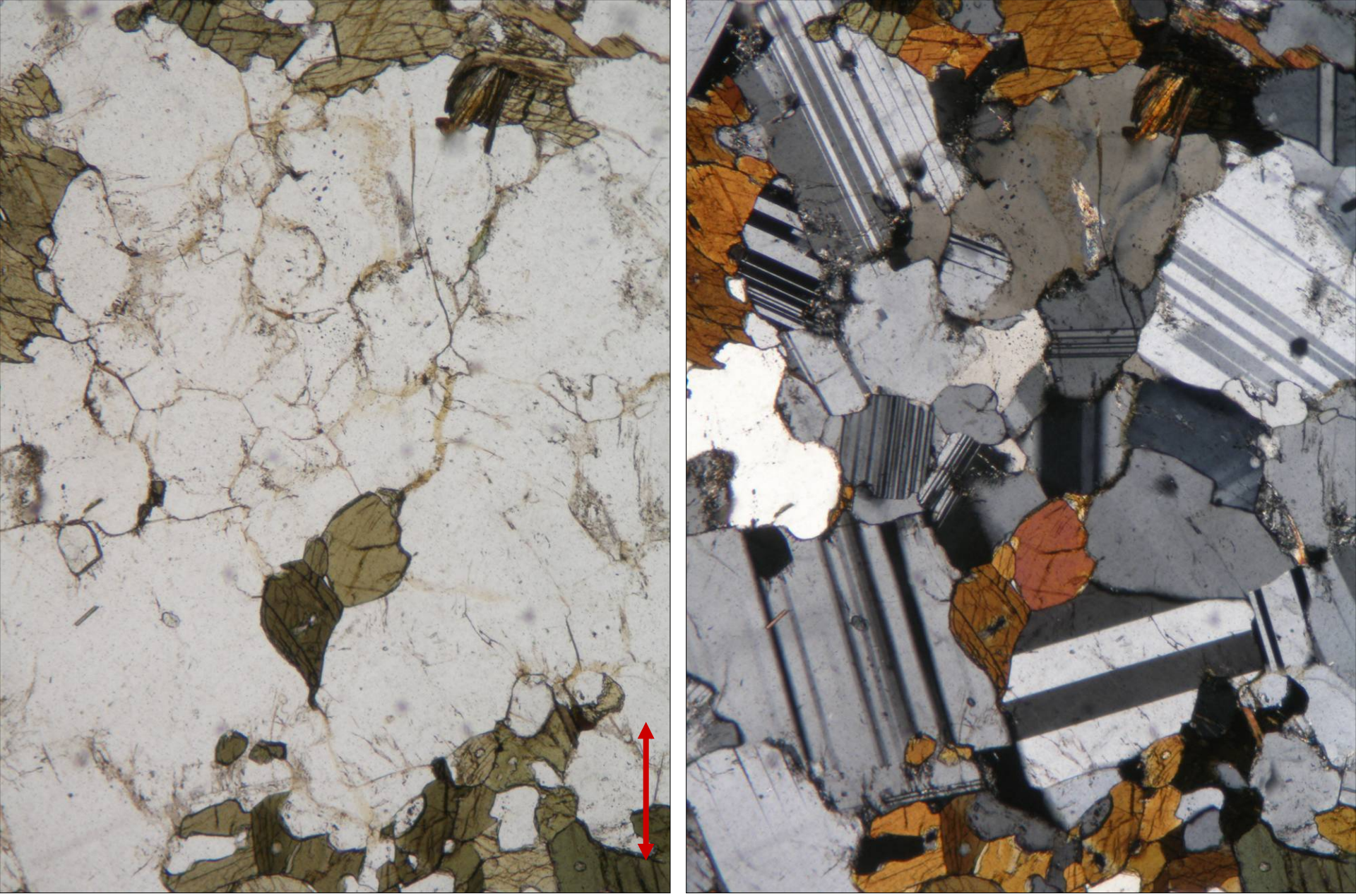
Plagioclase in diorite from Dolní Kounice, the Czech Republic; PPL (left) and XPL (right). Width of fields of view is ca. 1.3 mm. Photo: JiZi.



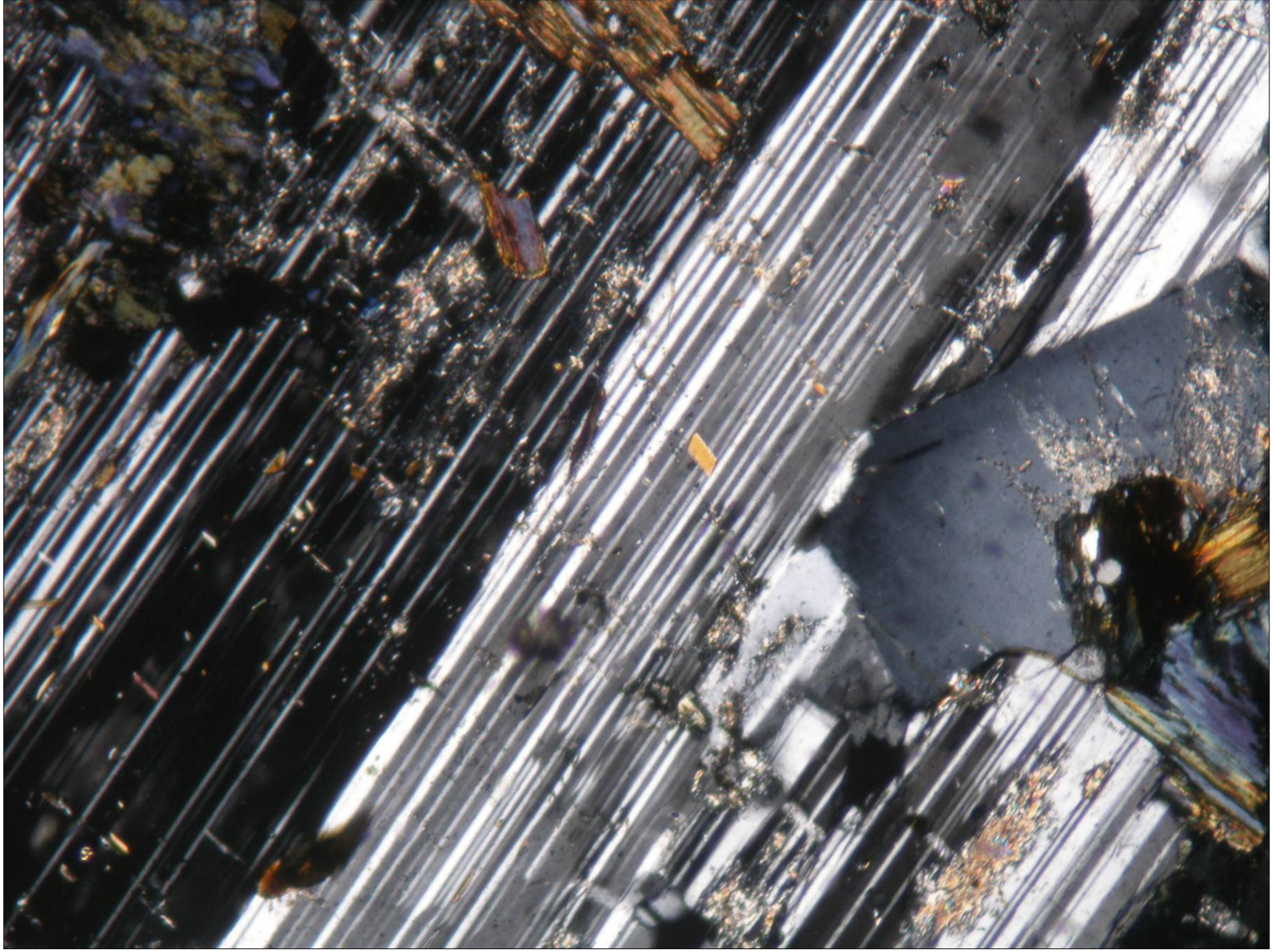
Plagioclase in diorite from Dolní Skorošice, the Czech Republic; PPL (left) and XPL (right). Width of fields of view is ca. 1.7 mm. Photo: JiZi.



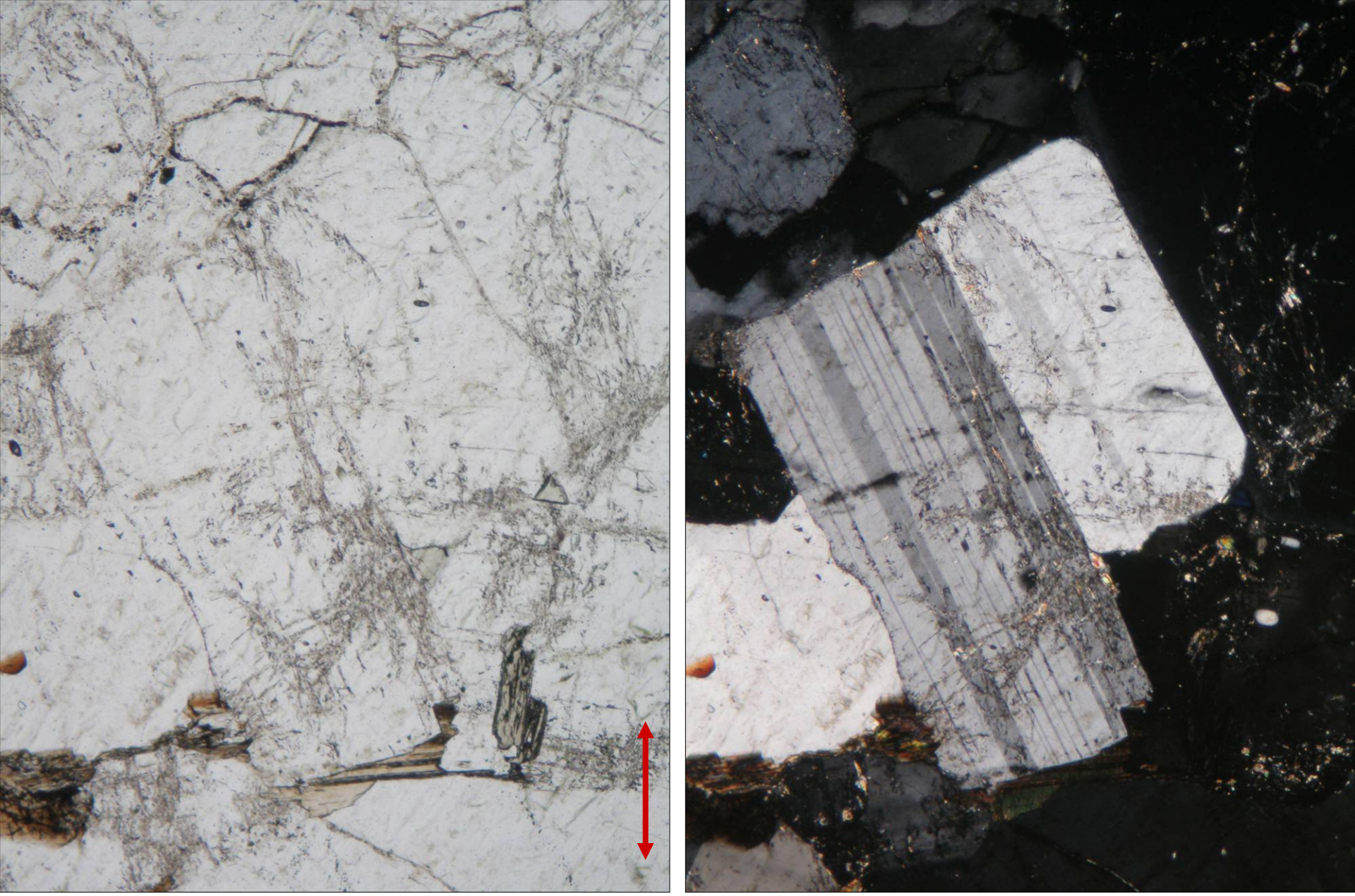
Plagioclase in gabbro from Deštné, the Czech Republic; PPL (left) and XPL (right). Width of fields of view is ca. 1.7 mm. Photo: JiZi.



Plagioclase and hornblende in gneiss from Mirošov, the Czech Republic; PPL (left) and XPL (right). Width of fields of view is ca. 1.7 mm. Photo: JiZi.

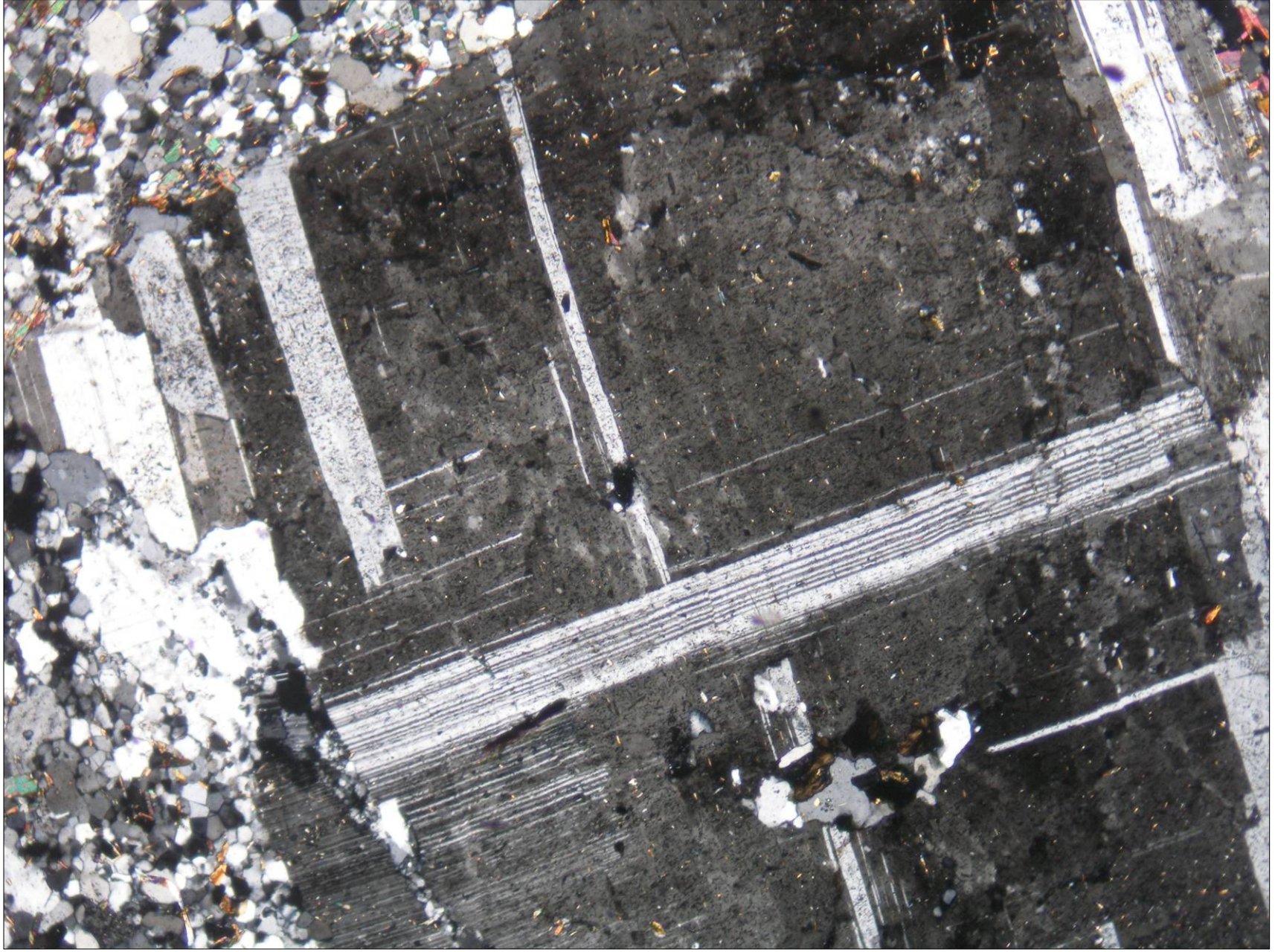


Plagioclase in gneiss from Mirošov, the Czech Republic; XPL. Field of view is ca. 2.4 mm wide. Photo: JiZi.

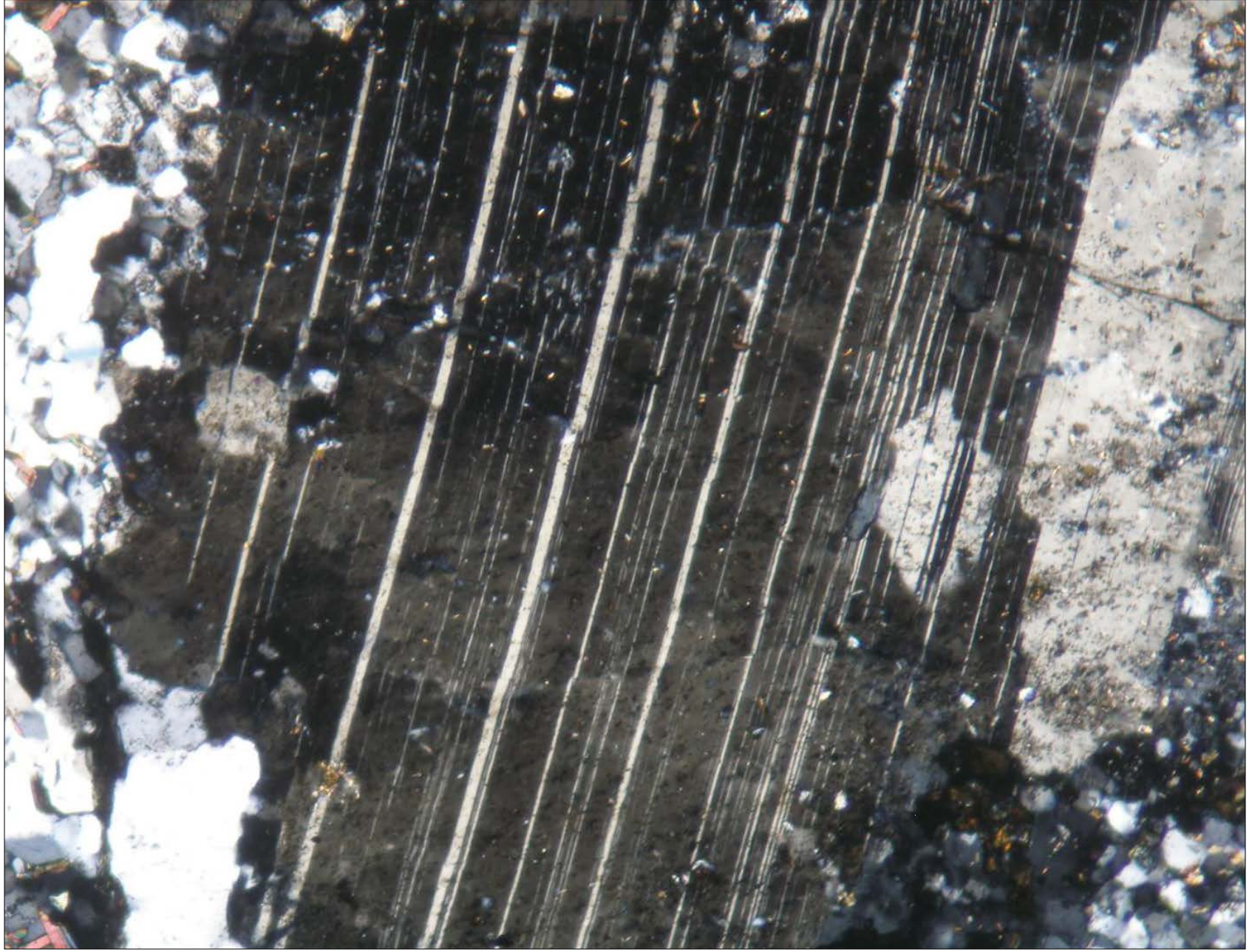


Plagioclase in gneiss from Vanov, the Czech Republic; PPL (left) and XPL (right). Width of fields of view is ca. 1.8 mm. Photo: JiZi.

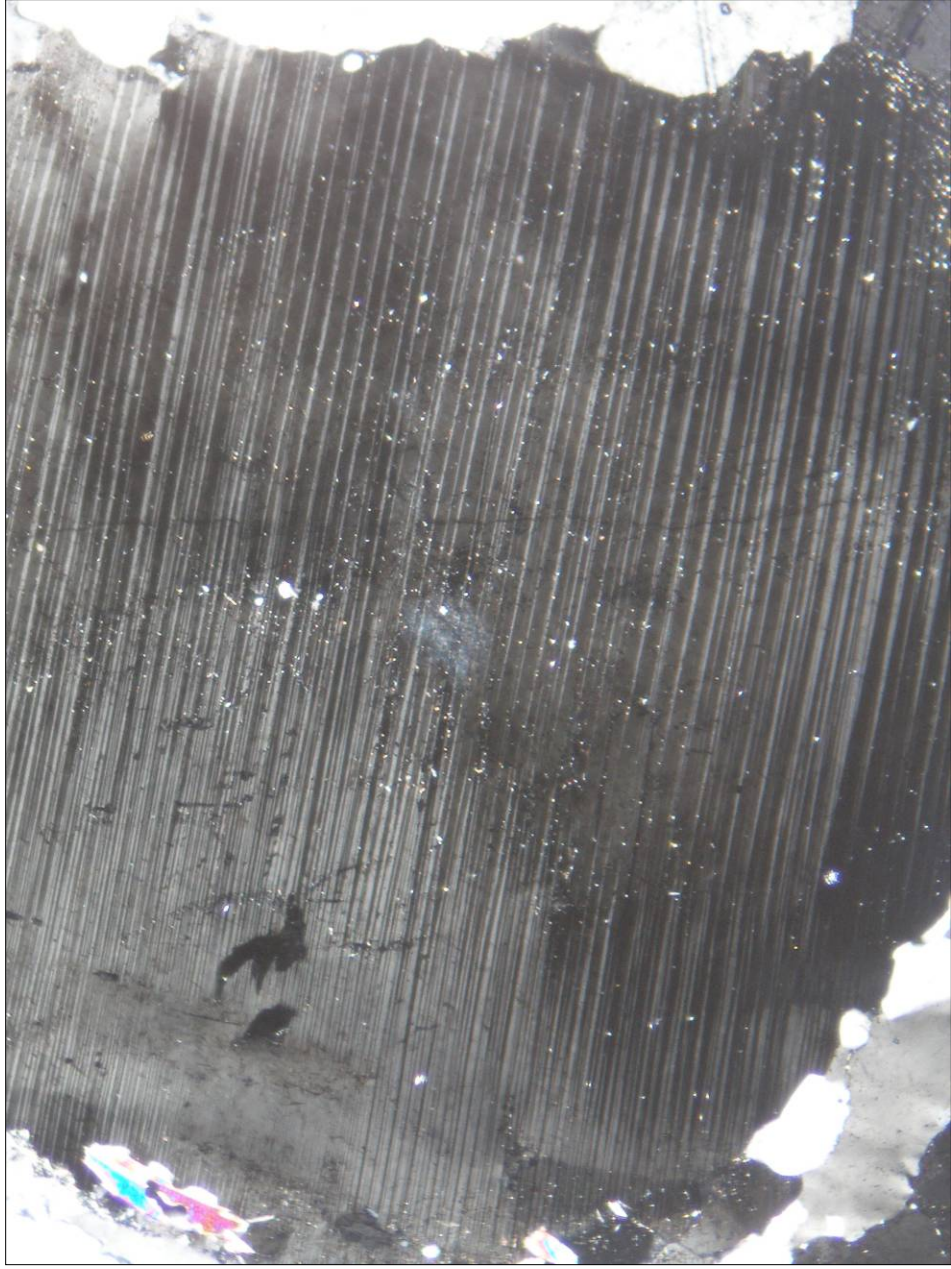
Plagioclase in gneiss from Vanov, the Czech Republic; PPL (left) and XPL (right). Width of fields of view is ca. 1.8 mm. Photo: JiZi.



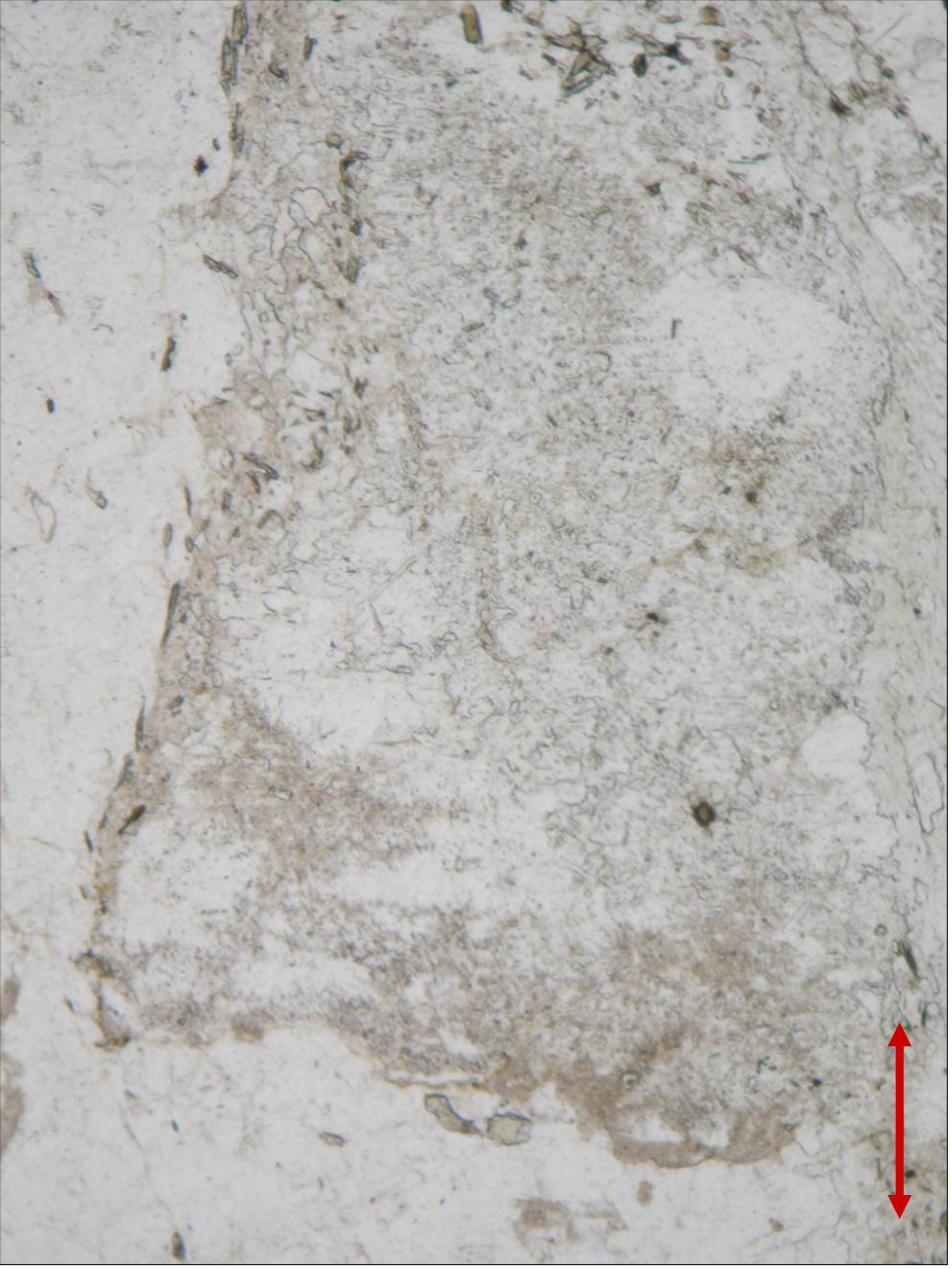
Plagioclase in gneiss from Lukov, the Czech Republic; XPL. Width of the field of view is ca. 3 mm. Photo: JiZi.

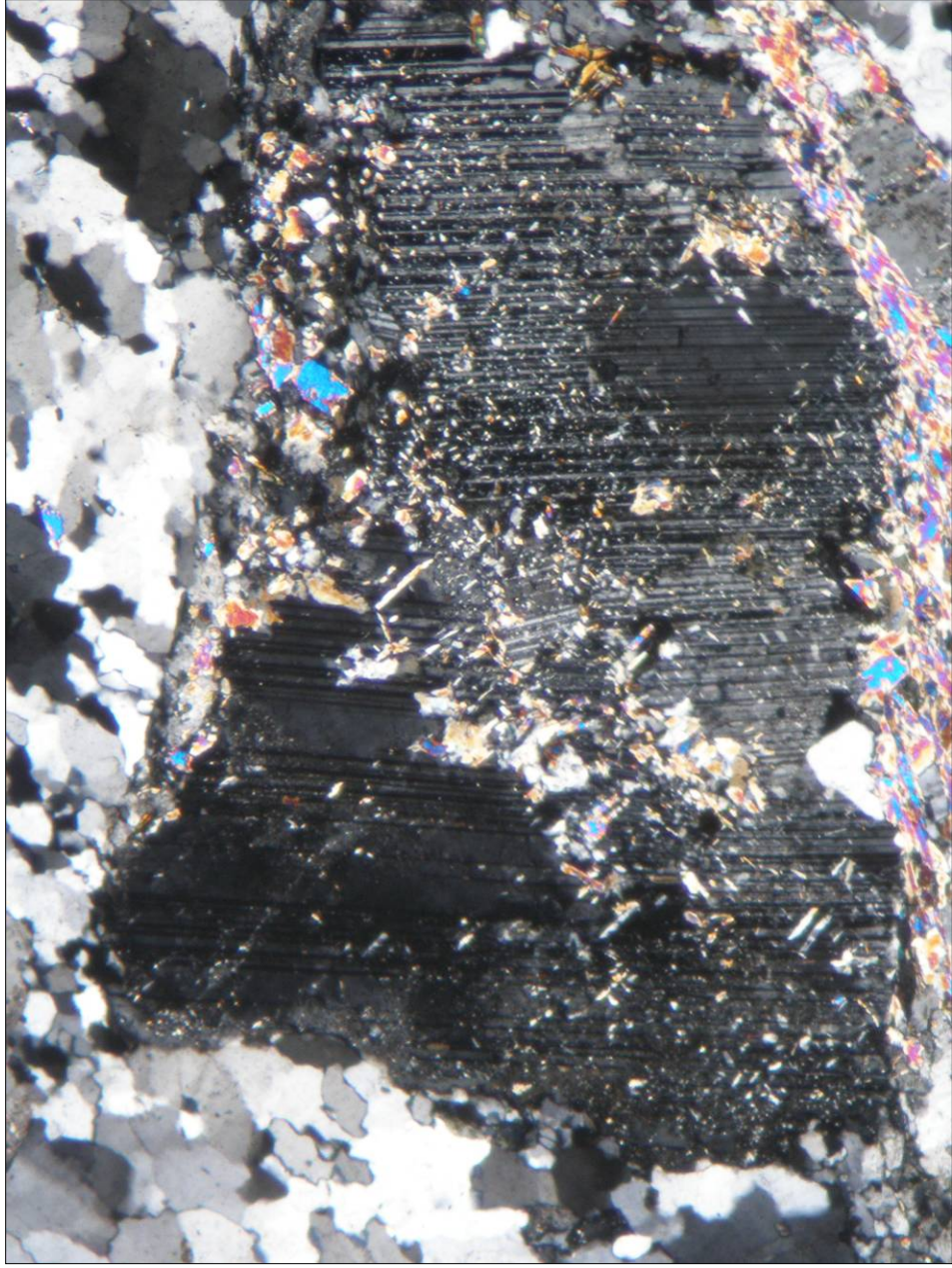


Plagioclase in gneiss from Lukov, the Czech Republic; XPL. Width of the field of view is ca. 2.6 mm. Photo: JiZi.

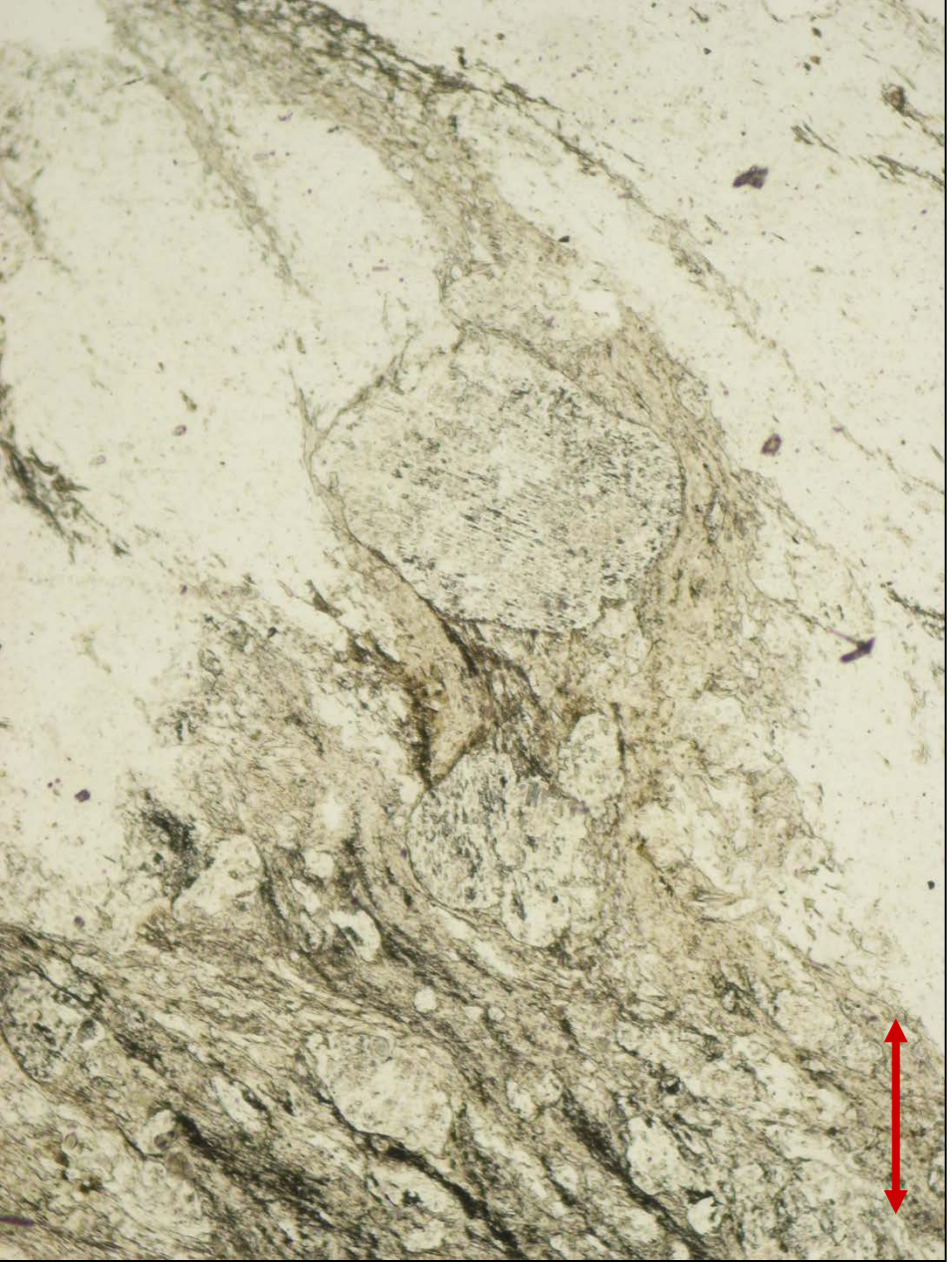


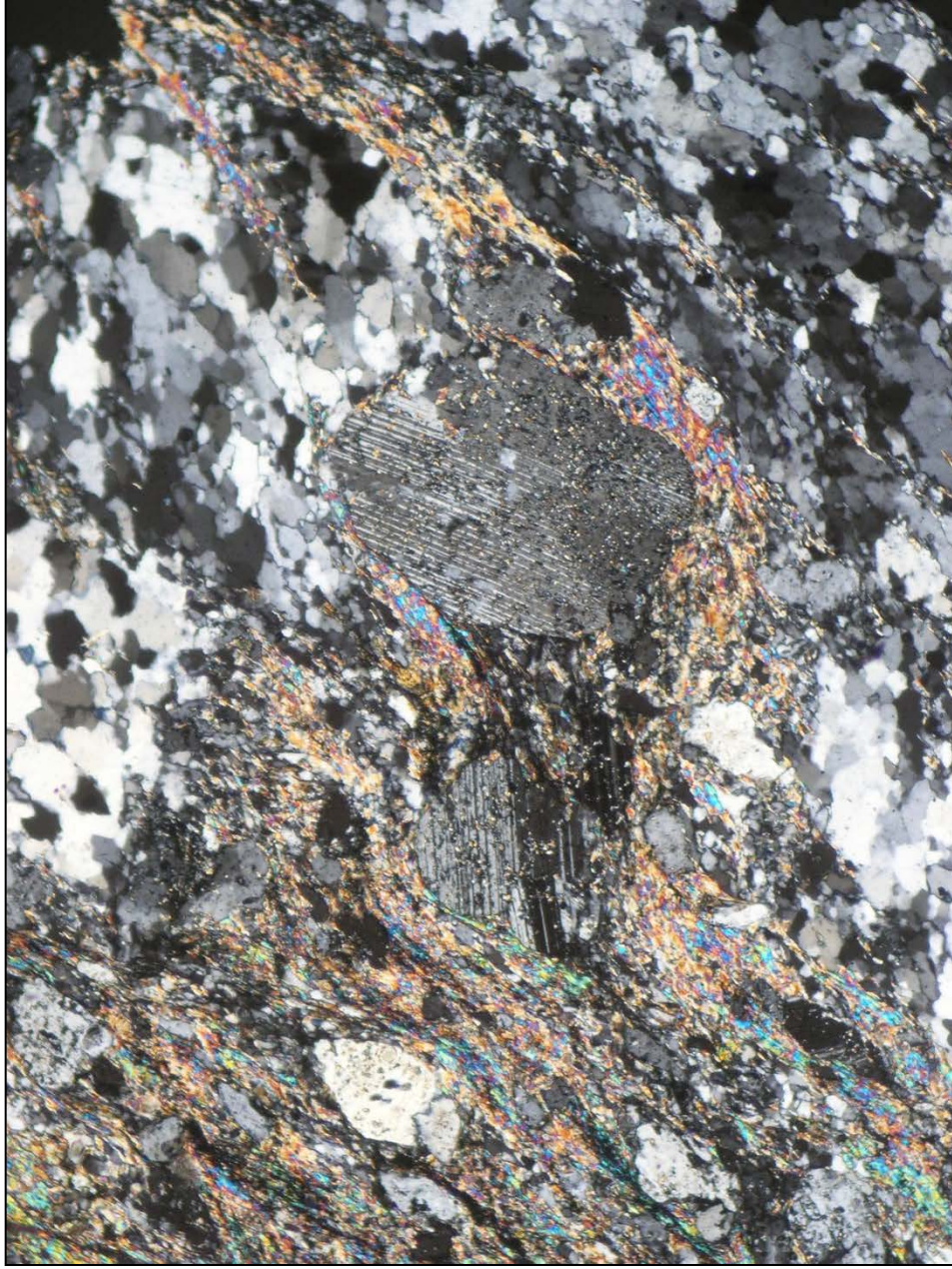
Plagioclase in migmatite from Kaňk near Kutná Hora, the Czech Republic; PPL (left) and XPL (right). Width of fields of view is ca.1.8 mm. Photo: JiZi.



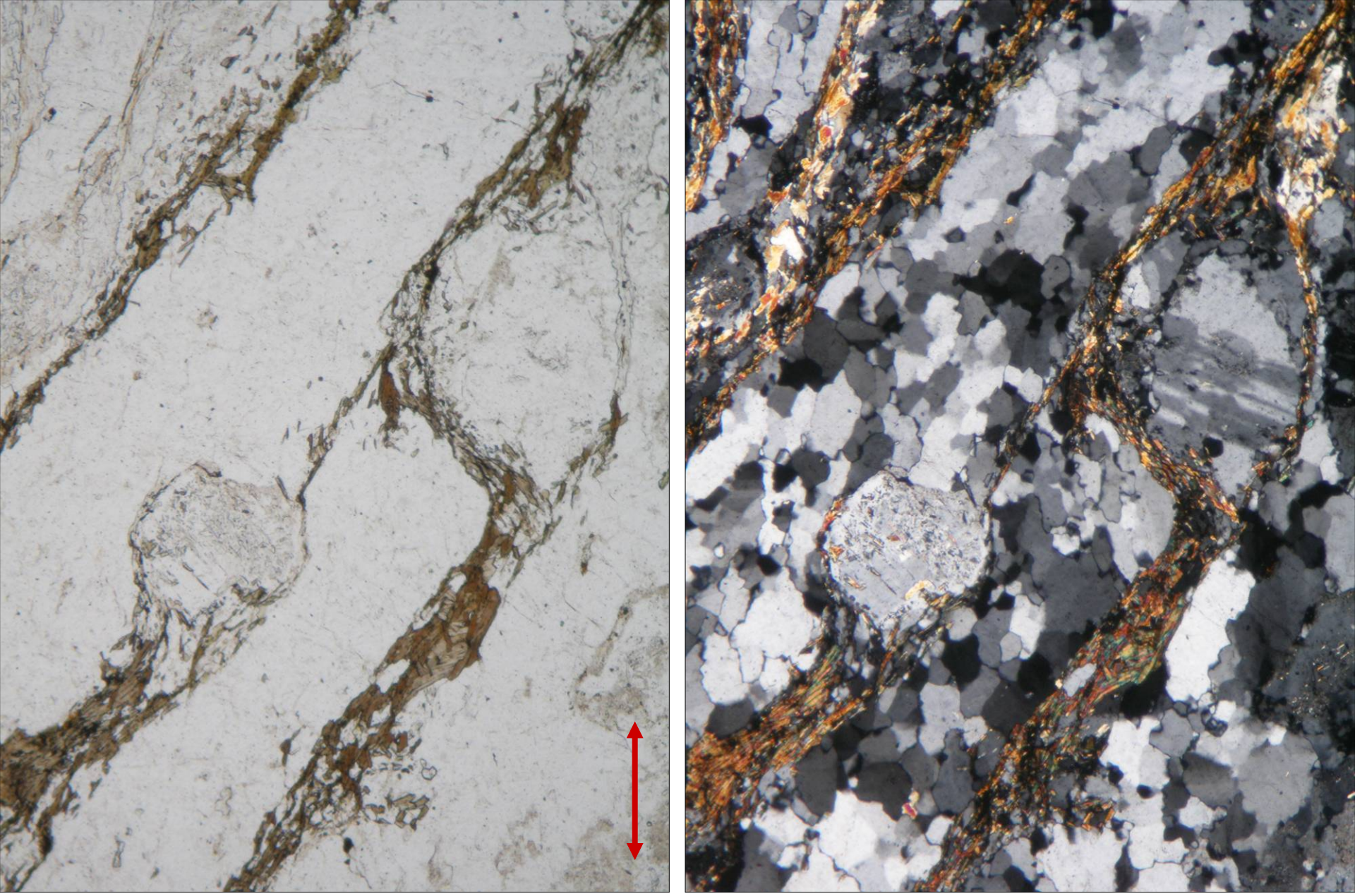


Plagioclase in orthogneiss from Nectava, the Czech Republic; PPL (left) and XPL (right). Width of fields of view is ca. 1.8 mm. Photo: JiZi.

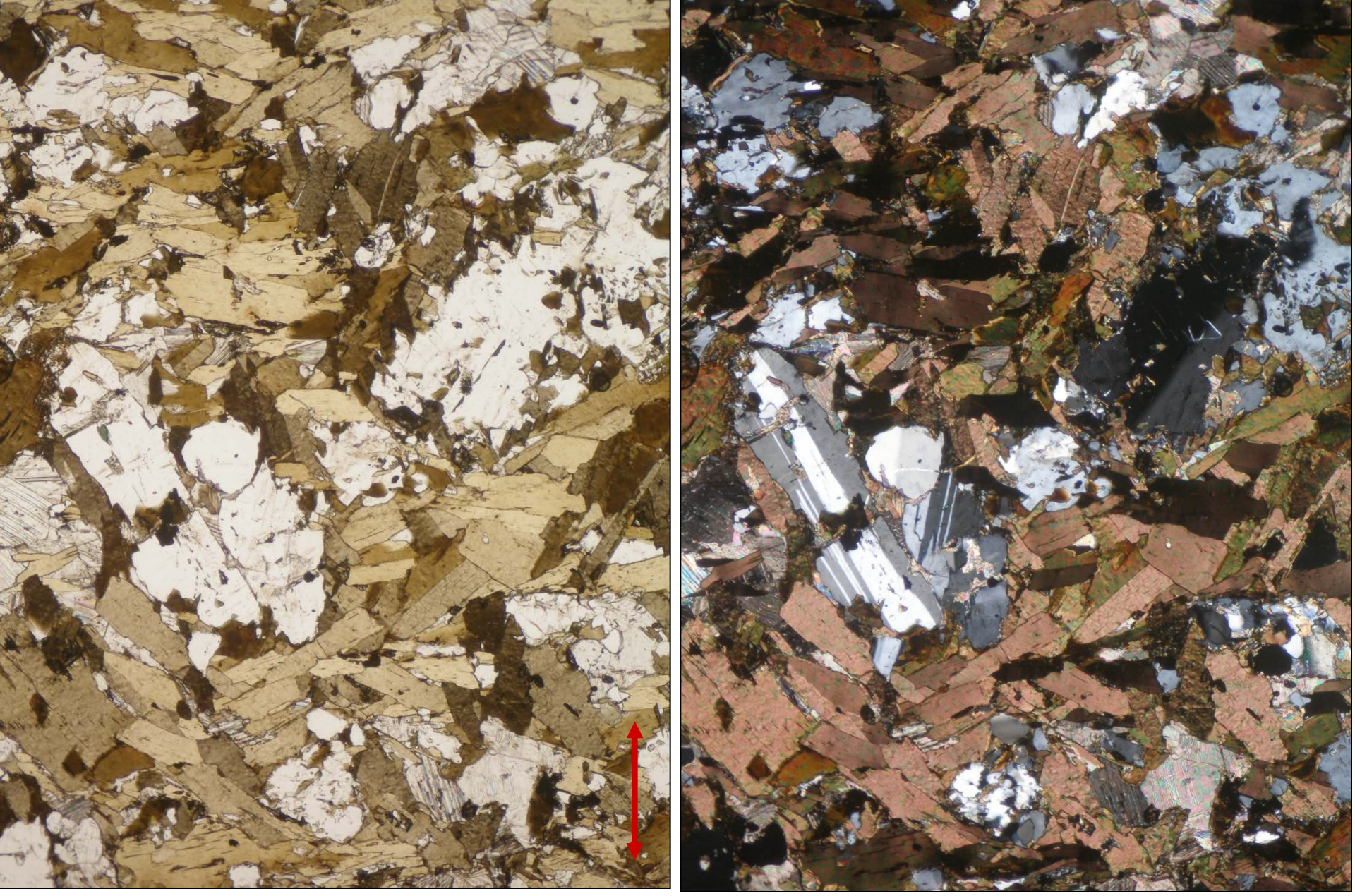




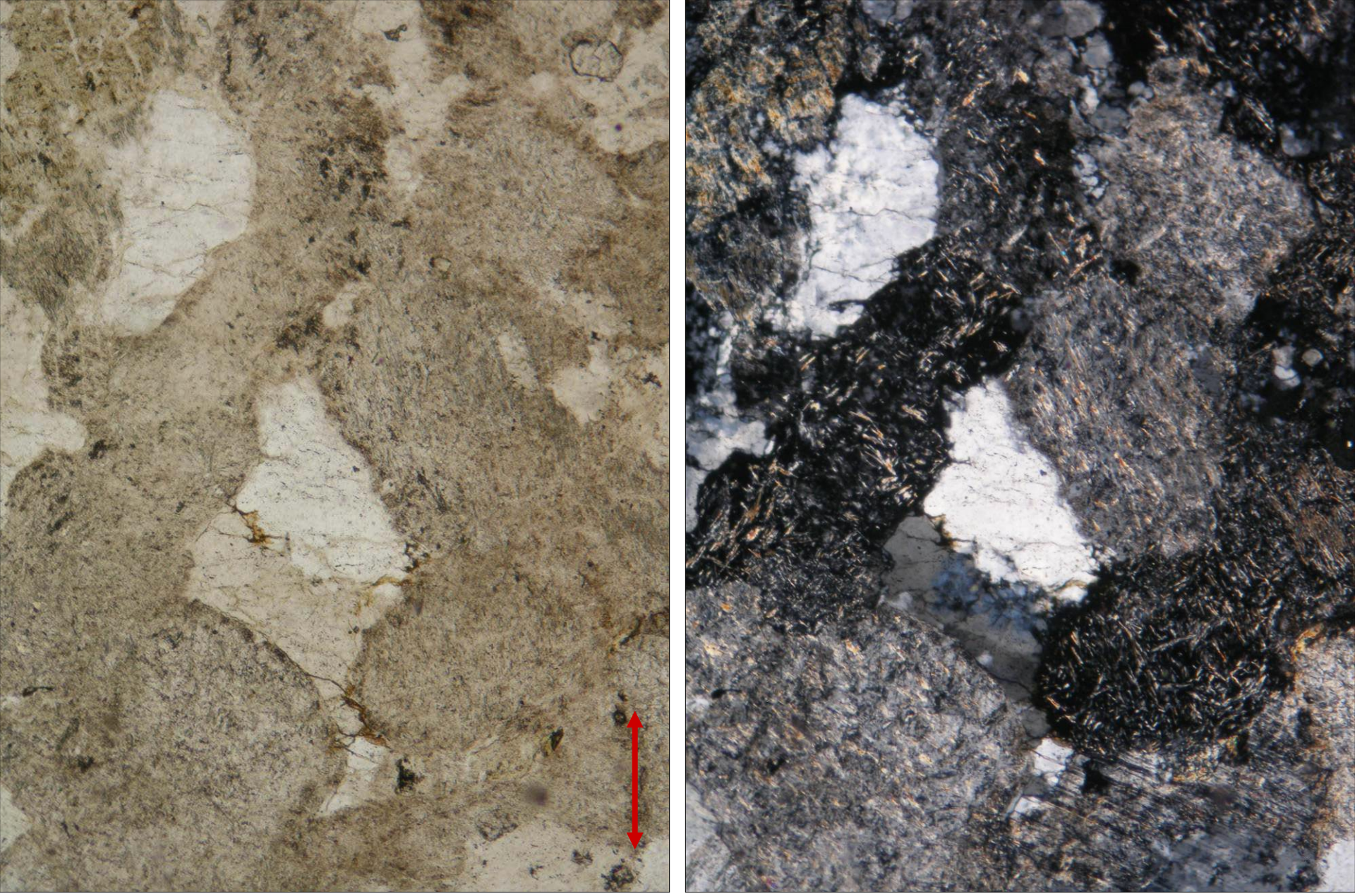
Plagioclase in orthogneiss from Nectava, the Czech Republic; PPL (left) and XPL (right). Width of fields of view is ca. 2.4 mm. Photo: JiZi.



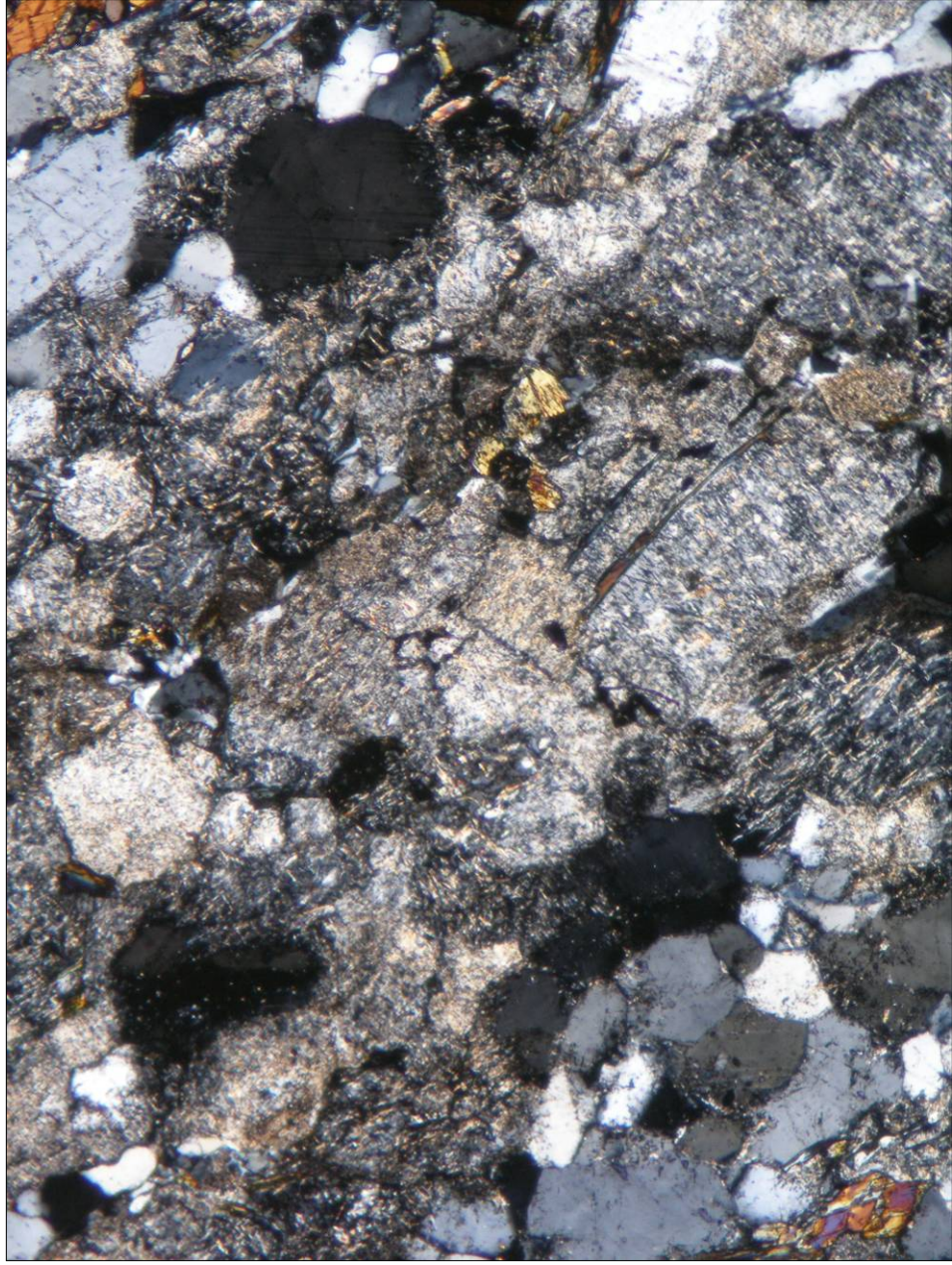
Plagioclase in orthogneiss from Nectava, the Czech Republic; PPL (left) and XPL (right). Width of fields of view is ca. 1.8 mm. Photo: JiZi.



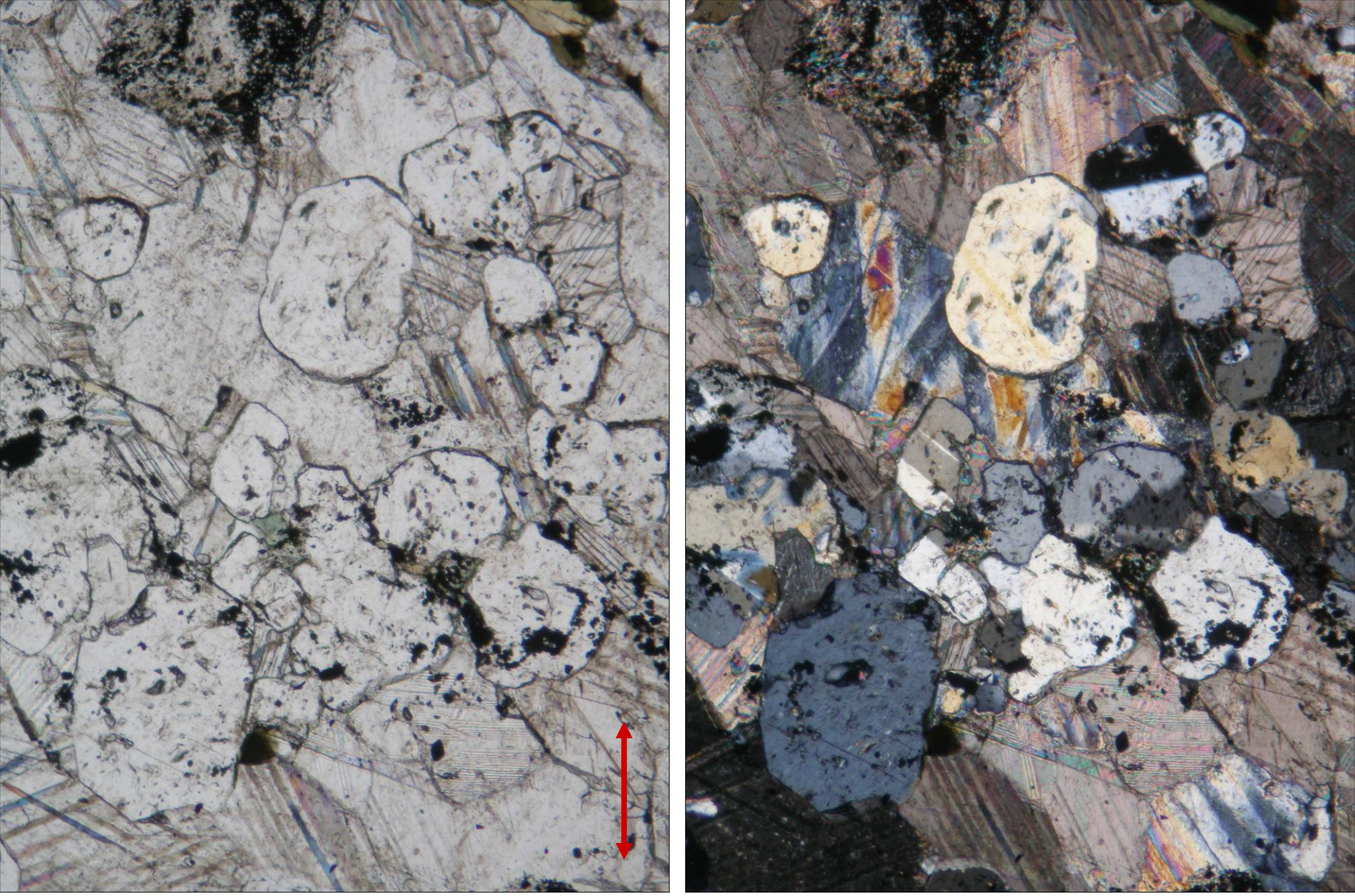
Plagioclase in gneiss from Velká Morava, the Czech Republic, the Czech Republic; PPL (left) and XPL (right). Width of fields of view is ca. 2.4 mm. Photo: JiZi.



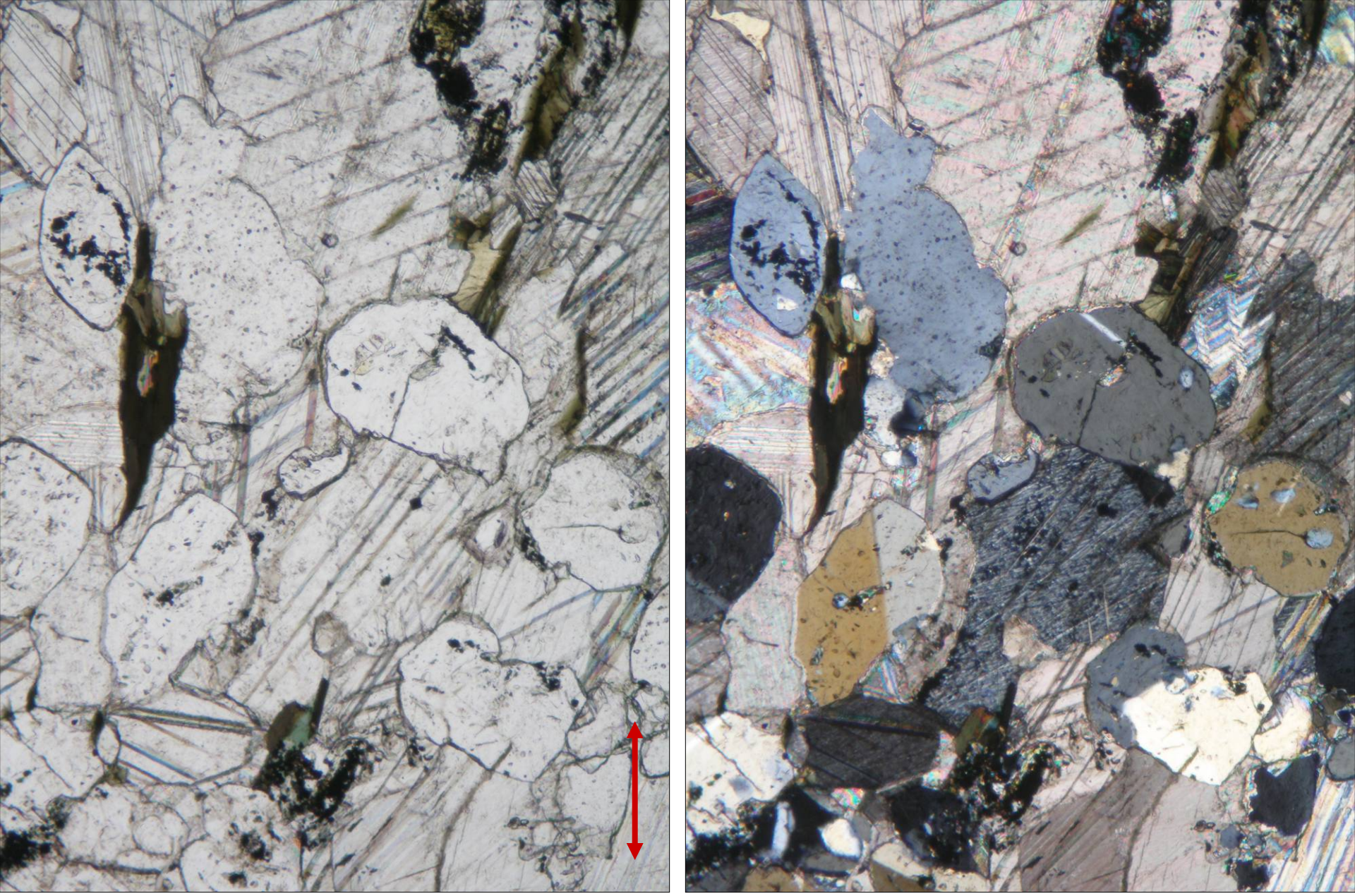
Strongly altered feldspars (mainly plagioclase) and quartz in pegmatite from Supíkovice, the Czech Republic; PPL (left) and XPL (right). Width of fields of view is ca. 1.6 mm. Photo: JiZi.



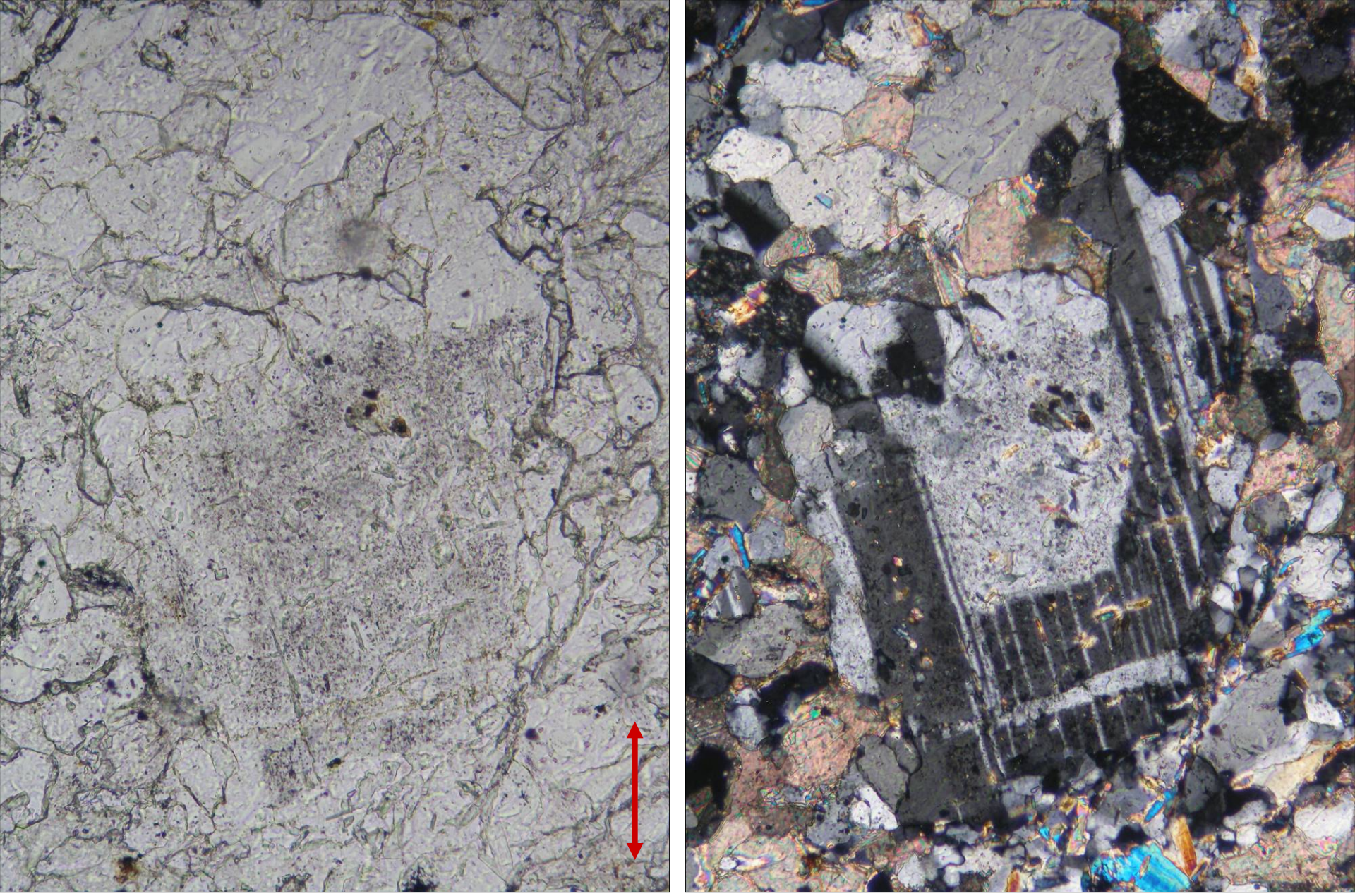
Strongly altered plagioclase in garnet amphibolite from Vranov nad Dyjí, the Czech Republic; PPL (left) and XPL (right). Width of fields of view is ca. 1.8 mm. Photo: JiZi.



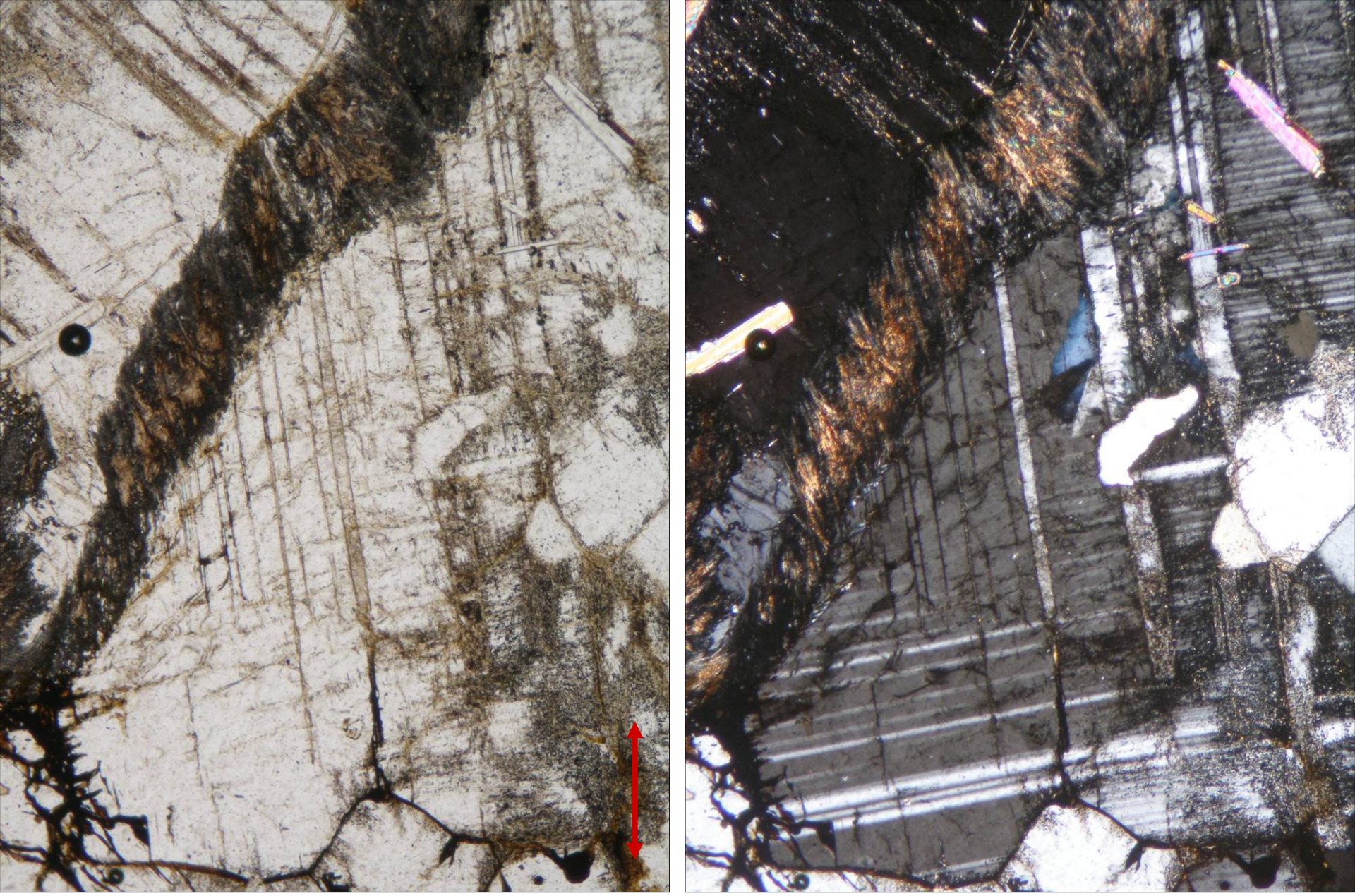
Plagioclase (albite) with calcite in marble from Heřmanovice, the Czech Republic; PPL (left) and XPL (right). Width of fields of view is ca. 1.8 mm. Photo: JiZi.



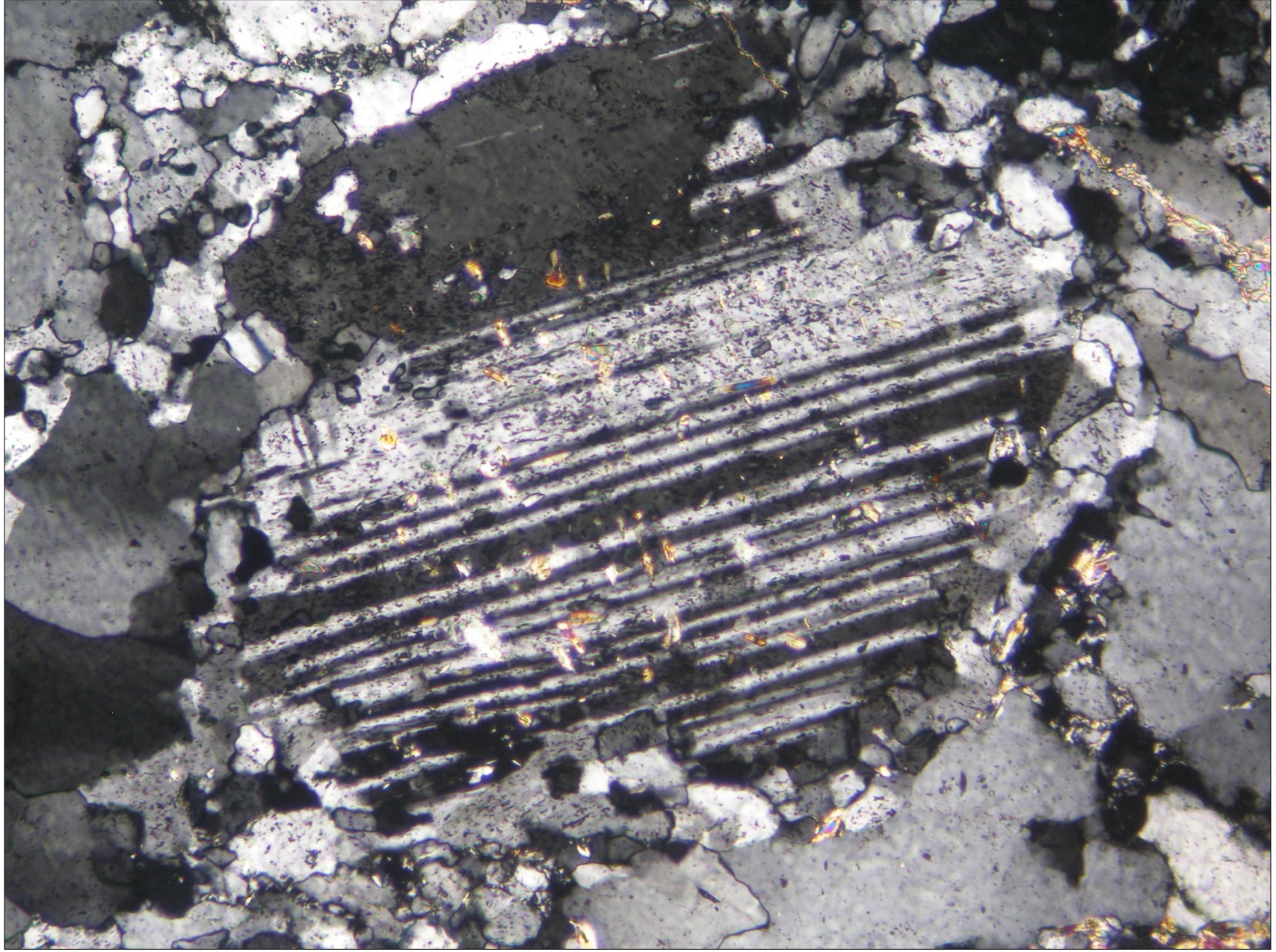
Plagioclase (albite), calcite and biotite in marble from Heřmanovice, the Czech Republic; PPL (left) and XPL (right). Width of fields of view is ca. 1.8 mm. Photo: JiZi.



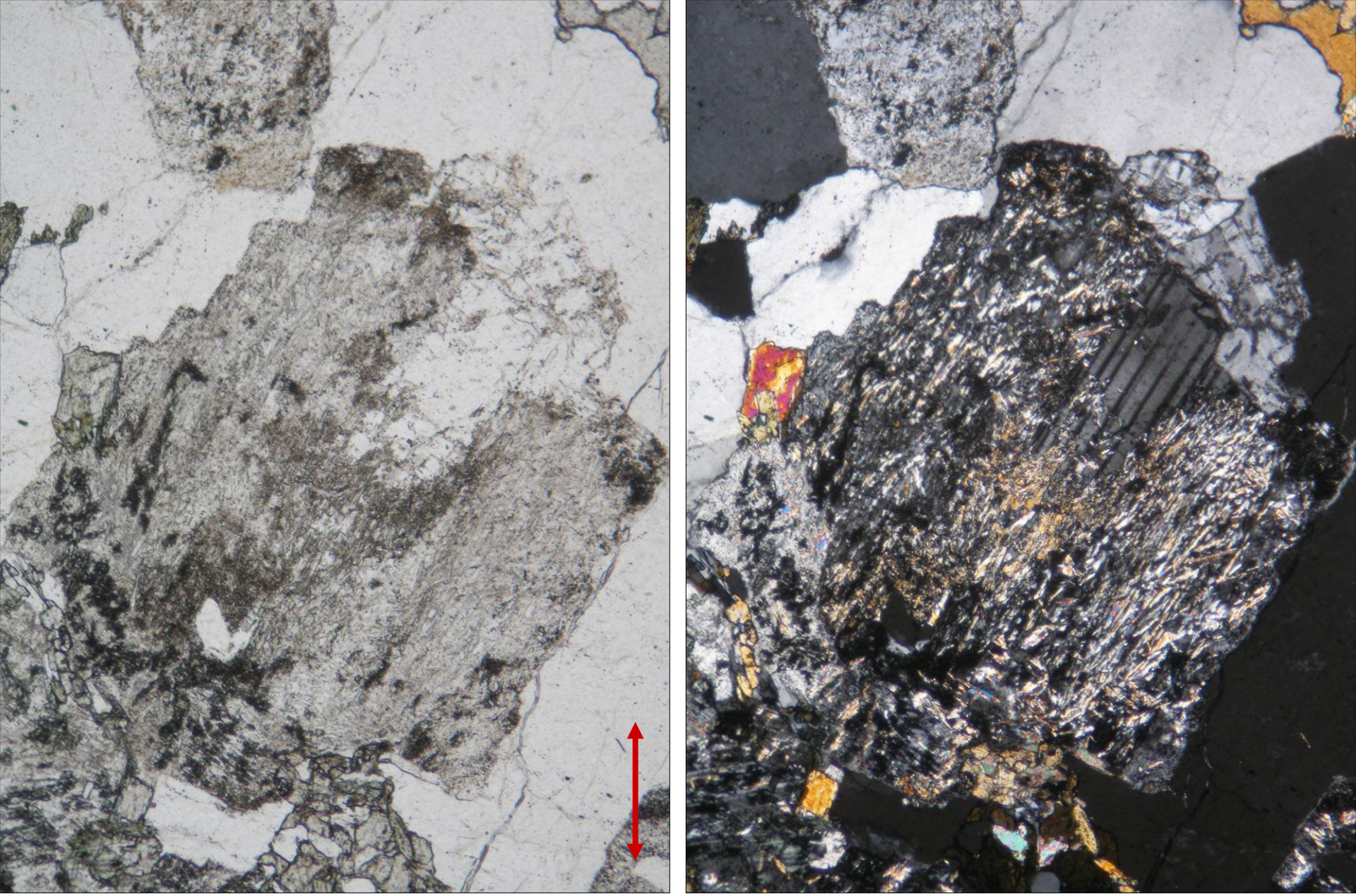
Plagioclase in marble from Heřmanovice, the Czech Republic; PPL (left) and XPL (right). Width of fields of view is ca. 0.8 mm. Photo: JiZi.



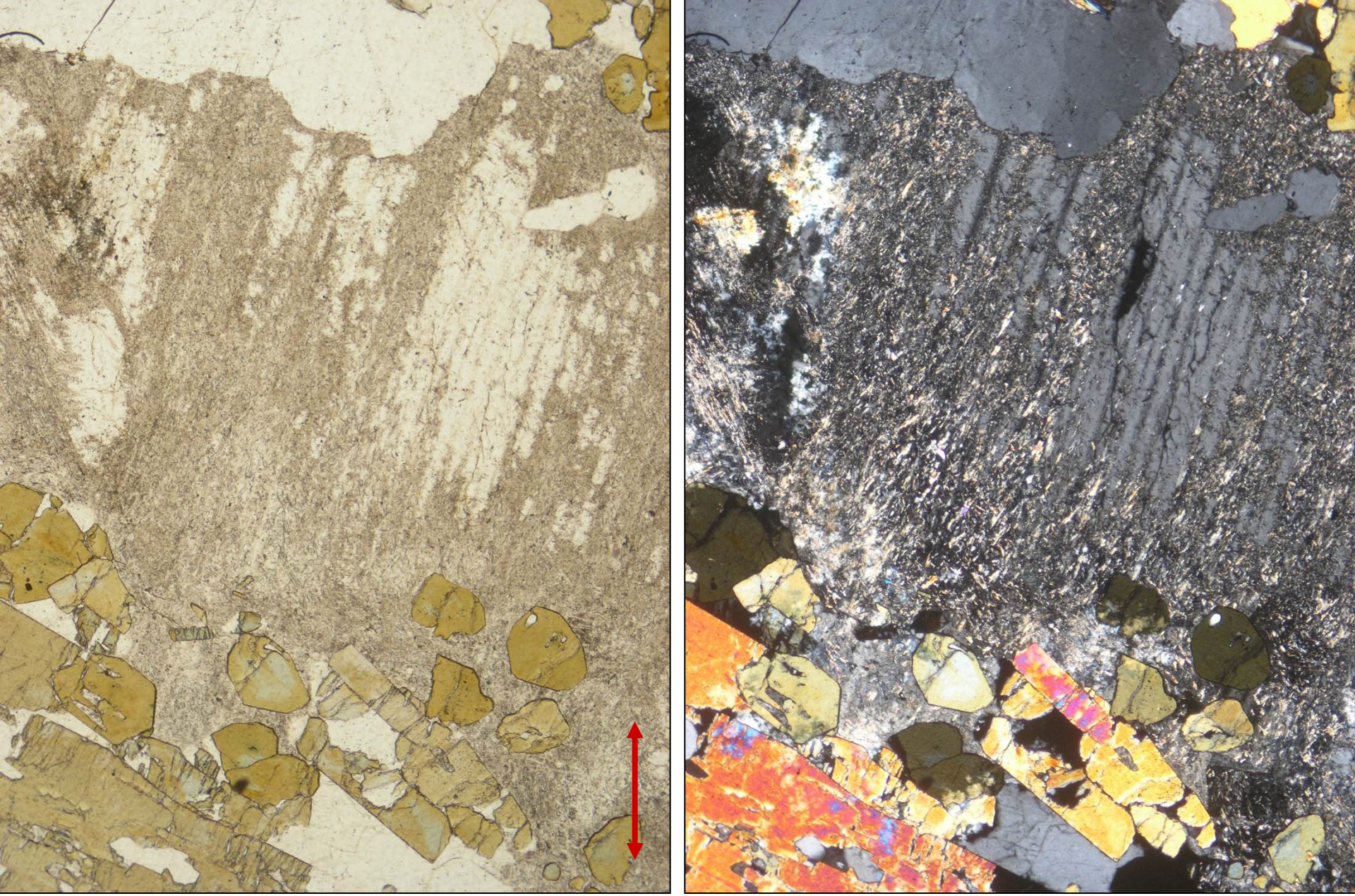
Plagioclase and sillimanite (fibrolite) in mica schist from Kovářová, the Czech Republic; PPL (left) and XPL (right). Width of fields of view is ca. 1.7 mm. Photo: JiZi.



Plagioclase in gneiss from Bohutín, the Czech Republic; XPL. Field of view is ca. 2.3 mm wide. Photo: JiZi.

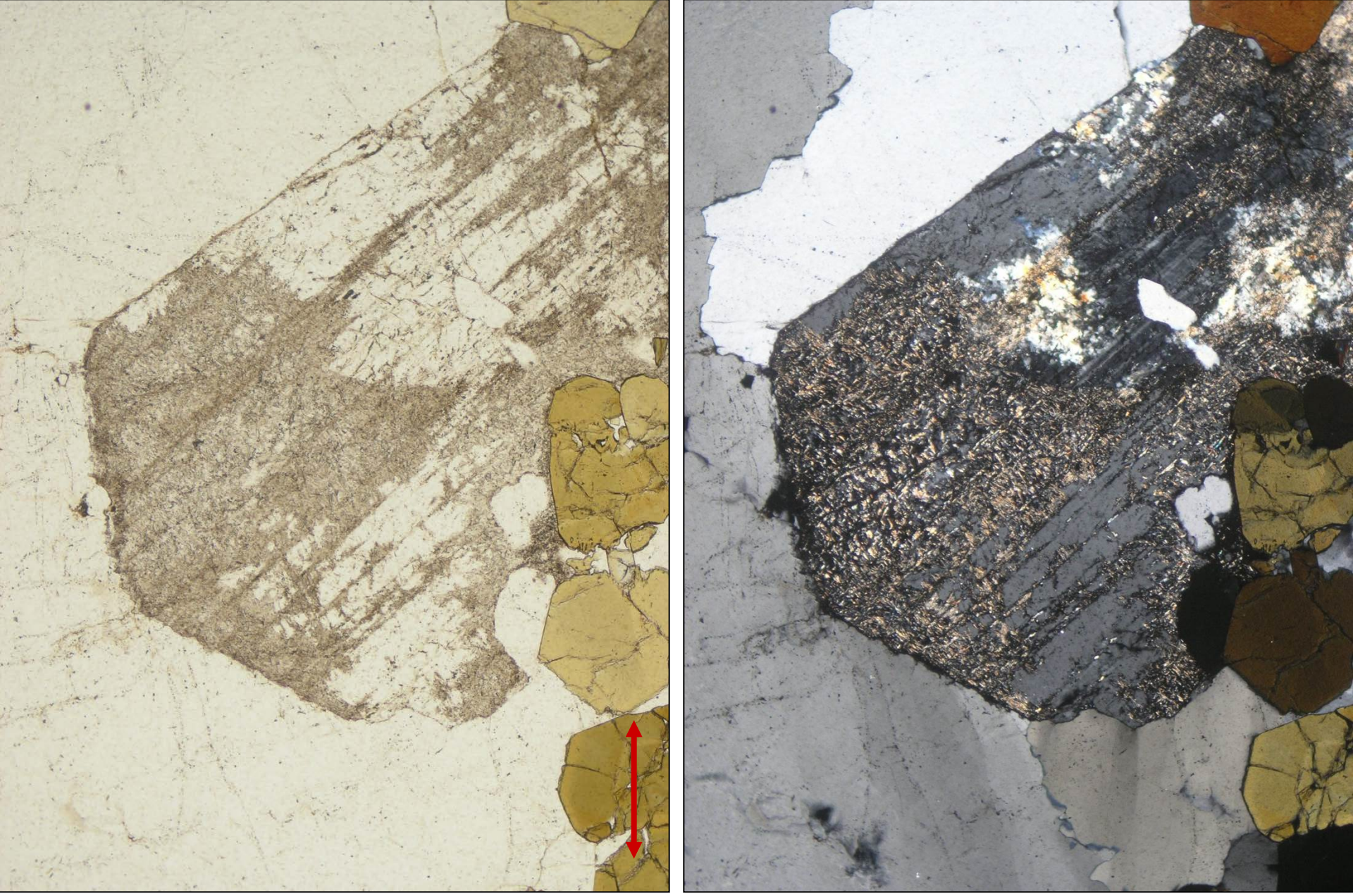


Sericitized plagioclase in contact skarn from Žulová, the Czech Republic; PPL (left) and XPL (right). Width of fields of view is ca. 1.7 mm. Photo: JiZi.

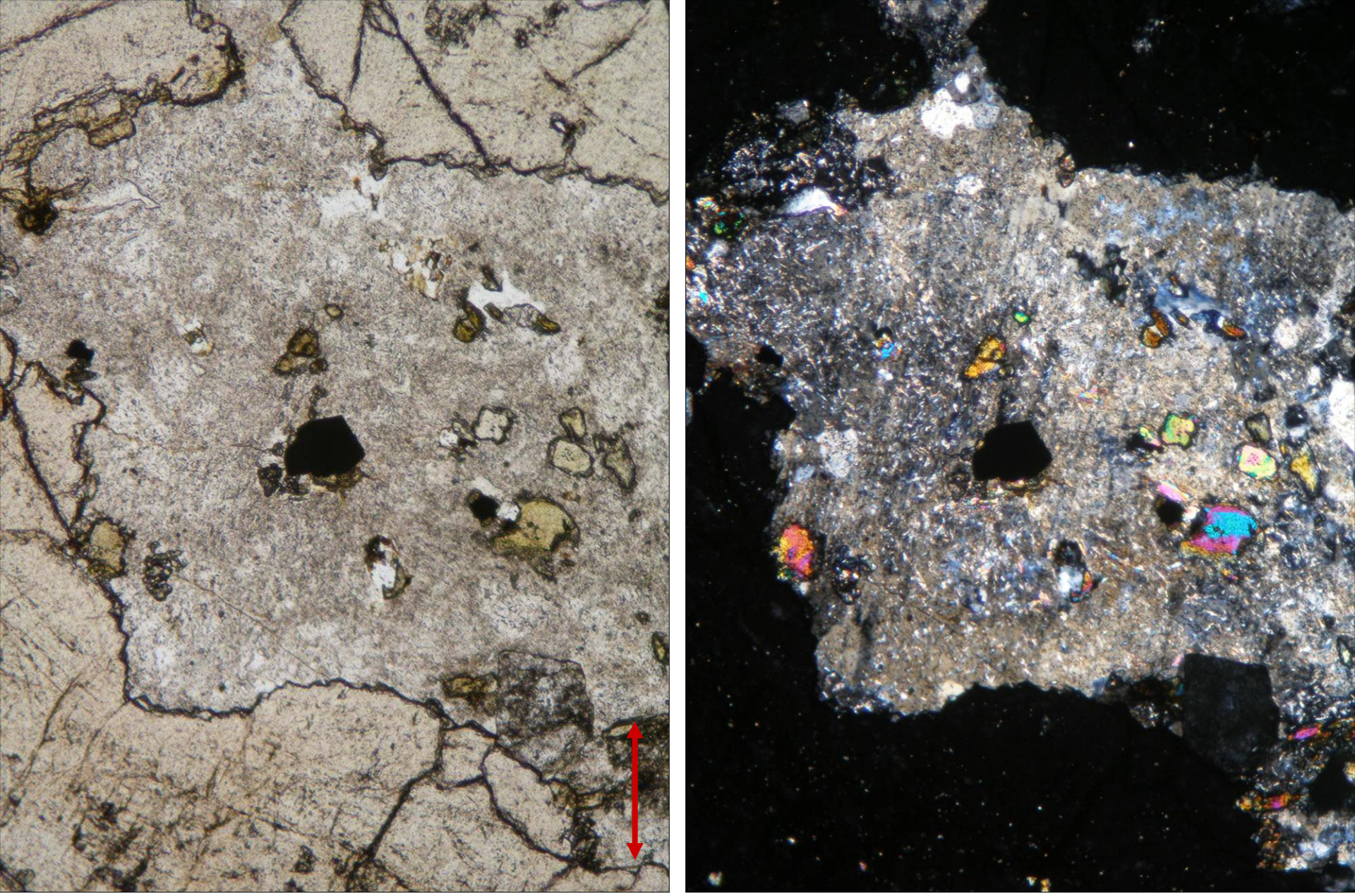


Sericitized plagioclase in a quartz vein in tourmalinite from Horní Lipová, the Czech Republic; PPL (left) and XPL (right). Width of fields of view is ca. 2.4 mm. Photo: JiZi.

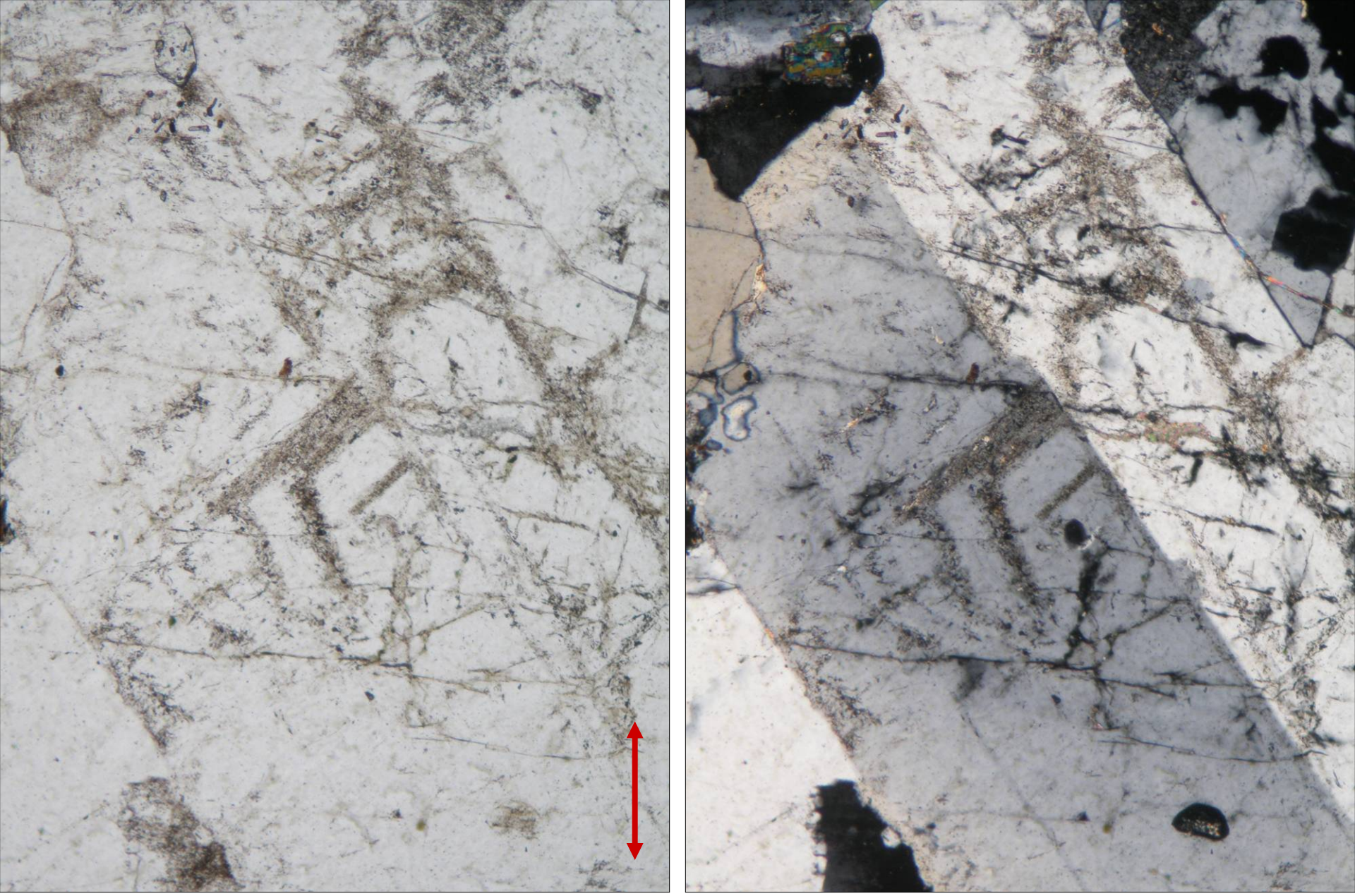
Sericitized plagioclase in a quartz vein in tourmalinite from Horní Lipová, the Czech Republic; PPL (left) and XPL (right). Width of fields of view is ca. 2.4 mm. Photo: JiZi.



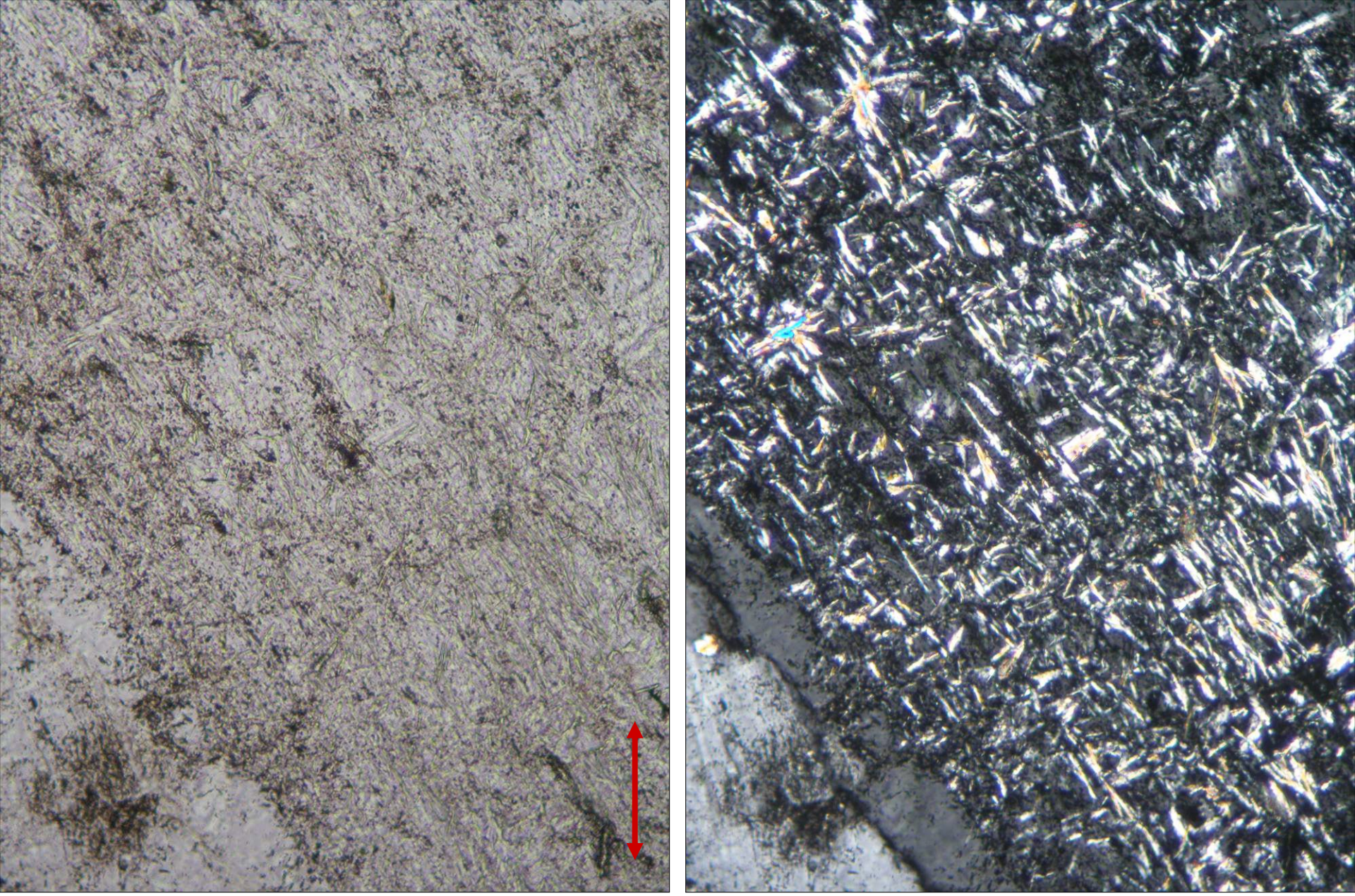
Sericitized plagioclase in a quartz vein with topurmaline from Horní Lipová, the Czech Republic; PPL (left) and XPL (right). Width of fields of view is ca. 2.4 mm. Photo: JiZi.



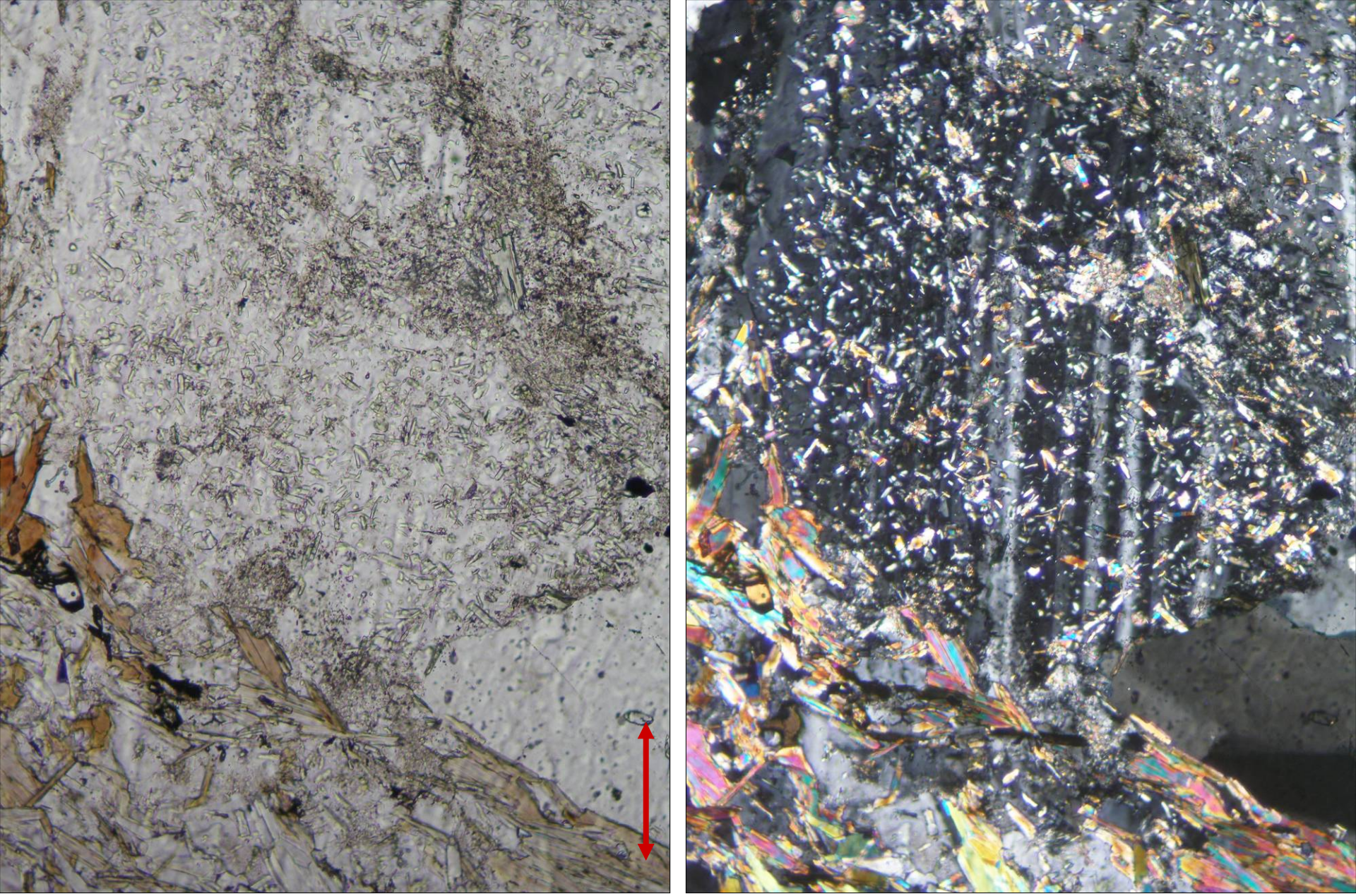
Altered plagioclase, garnet and epidote in metamanganolite from Vernířovice, the Czech Republic; PPL (left) and XPL (right). Width of fields of view is ca. 1.7 mm. Photo: JiZi.



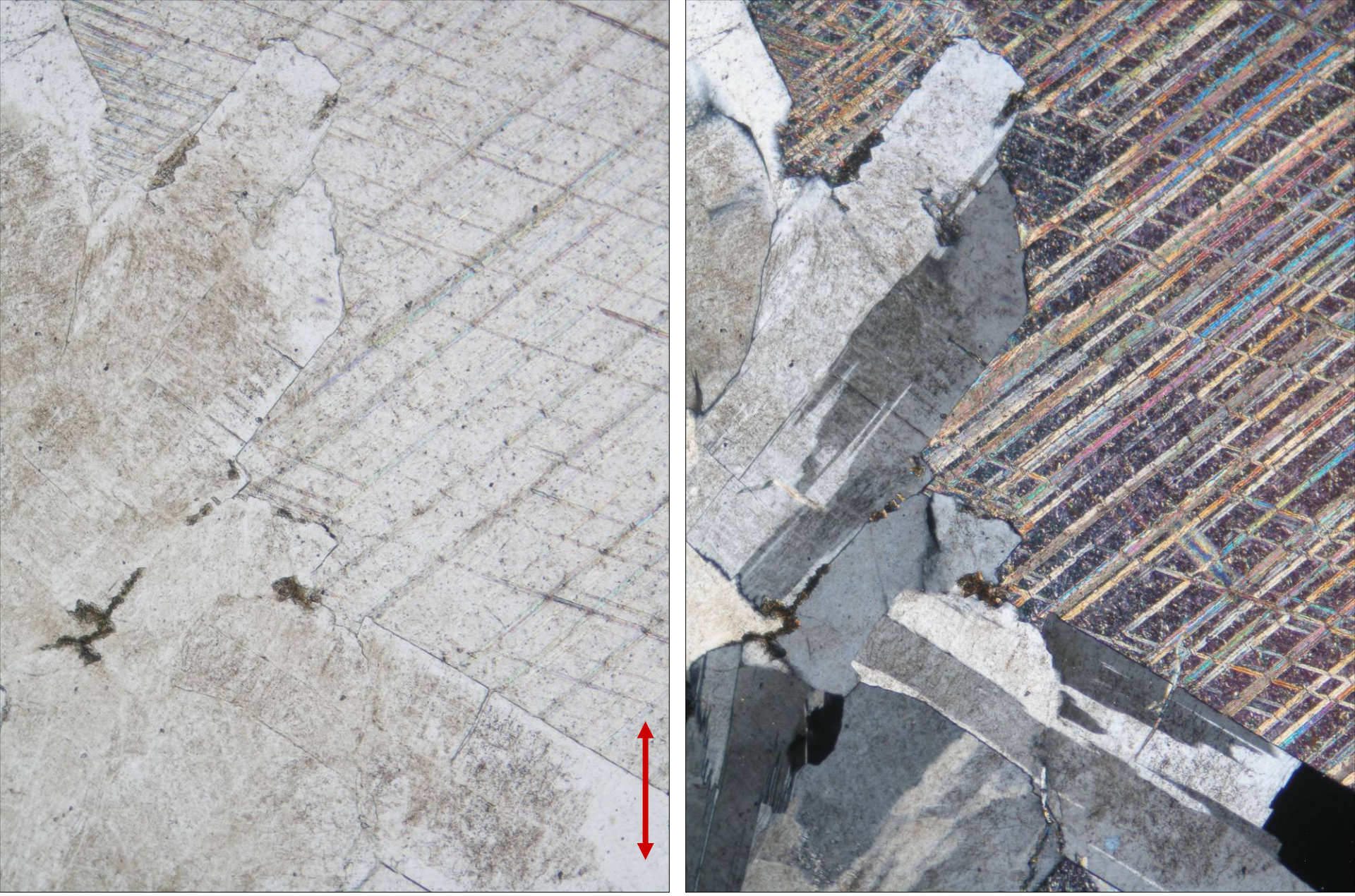
Plagioclase in granite from Mrákotín, the Czech Republic; PPL (left) and XPL (right). Width of fields of view is ca. 1.8 mm. Photo: JiZi.



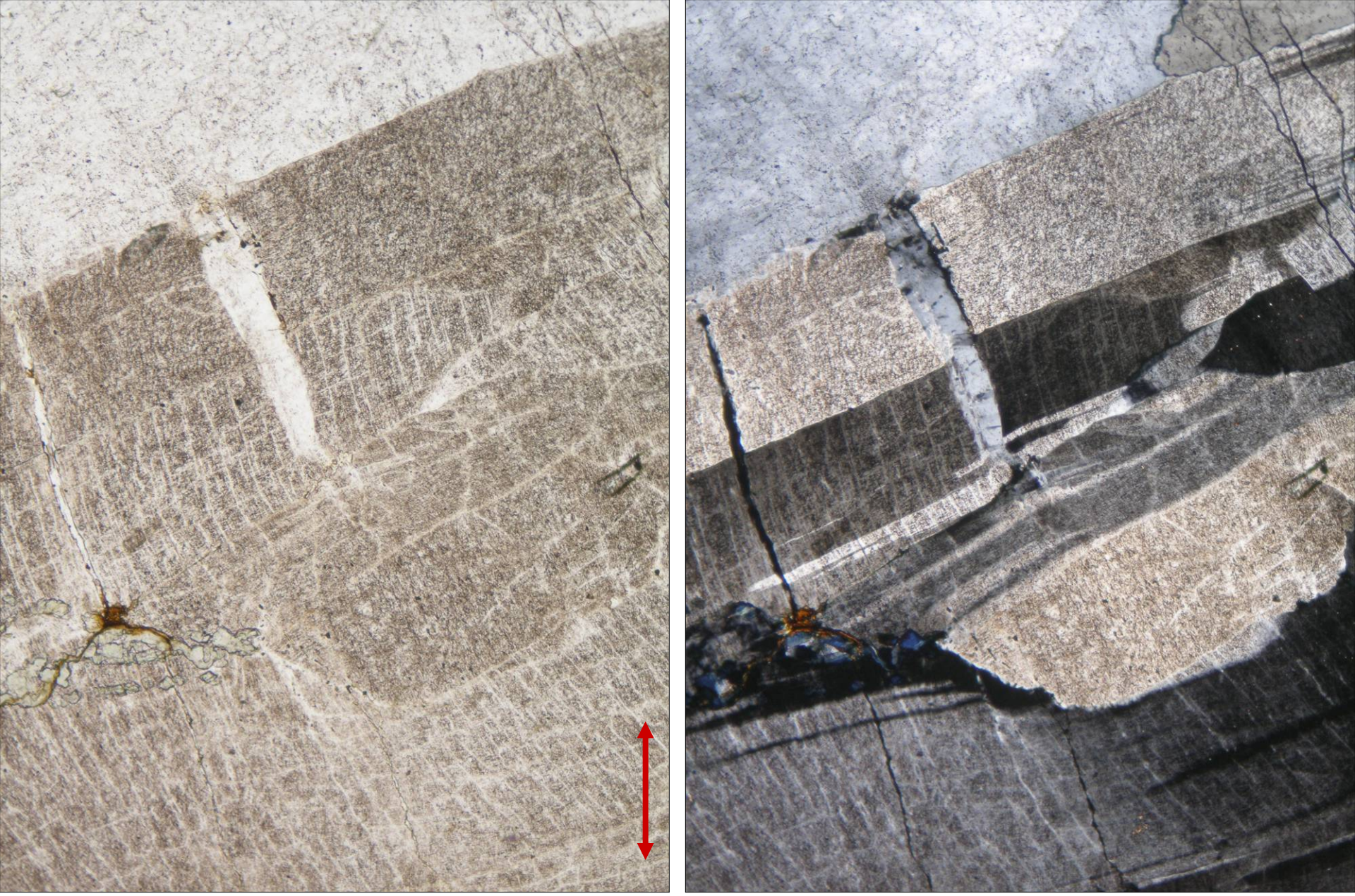
Strongly altered (sericitized) plagiclase in granite from Liberec, the Czech Republic; PPL (left) and XPL (right). Width of fields of view is ca. 0.7 mm. Photo: JiZi.



Sericitized plagioclase in orthogneiss from Vidly, the Czech Republic; PPL (left) and XPL (right). Width of fields of view is ca. 0.7 mm. Photo: JiZi.



Plagioclase (albite) and calcite in a hydrothermal vein from Hrabůvka, the Czech Republic; PPL (left) and XPL (right). Width of fields of view is ca. 1.7 mm. Photo: JiZi.



Plagioclase (albite) and quartz in a hydrothermal vein from Břidličná, the Czech Republic; PPL (left) and XPL (right). Width of fields of view is ca. 2.0 mm. Photo: JiZi.