

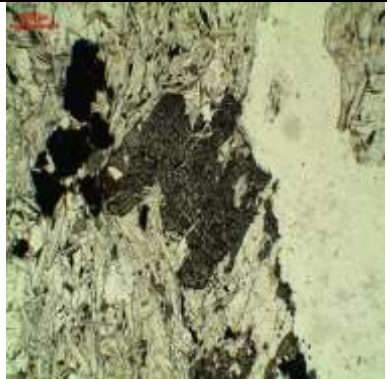
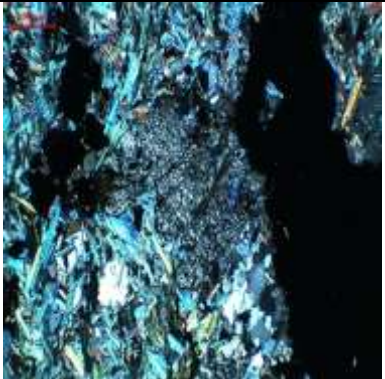
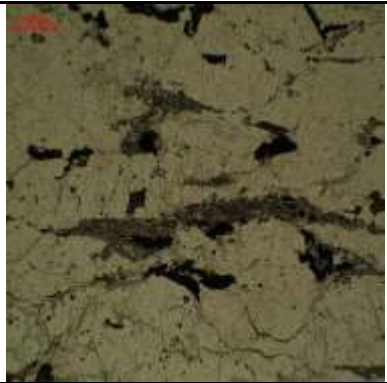
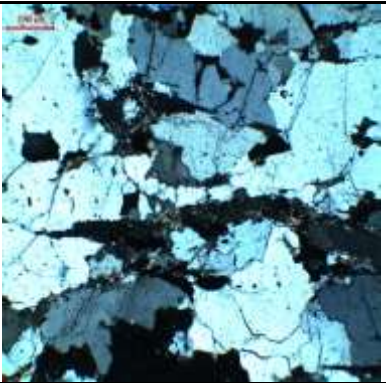
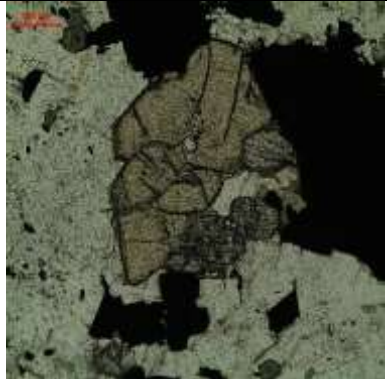
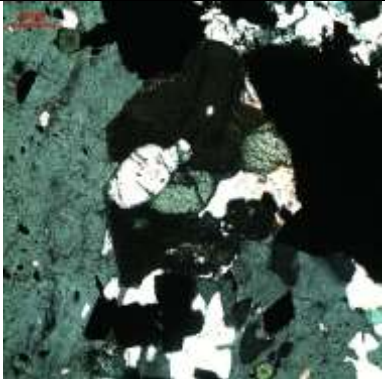


Plane Polarized	Mineral Name	Cross Polarized
	ANDALUSITE	
	Mineral Group: Silicates-Nesosilicates	
	Chemical Formula: Al₂SiO₅	
Color: Colorless,sometimes pink		Birefringence-Interference color: First order, grey
Pleochroism: None		Extinction: Parallel-symmetrical
Cleavage: Poor		Twinning: None
Fracture: Possibly		Alteration: Sericite
Relief: High,1.64		Optical Sign: Biaxial (-)
Inclusion: Possibly		Elongation Sign: (-)
Occurance: Metamorphic ,Sedimentary		
Distinctive Properties:Euhedral, 1st order birefringence color, colorless or pink		
Ankara University GEO202 Optical Mineralogy Prof. Dr. Yusuf Kağan KADIOĞLU		

Plane Polarized	Mineral Name	Cross Polarized
	DISTHENE (KYANITE)	
	Mineral Group: Silicates-Nesosilicates	
	Chemical Formula: Al₂SiO₅	
Color: Colourless,sometimes pale blue		Birefringence-Interference color: 2nd order birefringence color
Pleochroism: Sometimes visible		Extinction: Inclined (approximately 30°)
Cleavage: Perfect		Twinning: None
Fracture: Possibly		Alteration: Sericite, chloritoid
Relief: 1.71-1.72, Very high		Optical Sign: Biaxial (-)
Inclusion: Possibly		Elongation Sign: (+)
Occurance: Metamorphic		
Distinctive Properties: Colorless, fractures, perfect cleavage, high relief		
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Plane Polarized	Mineral Name	Cross Polarized
	LAWSONITE	
	Mineral Group: Silicates- Sorosilicates	
	Chemical Formula: Ca₂Al₂Si₂O₇(OH)₂.H₂O	
Color: Colourless		Birefringence-Interference color: 1st-2nd order
Pleochroism: Low		Extinction: Parallel, symmetrical
Cleavage: Sometimes		Twinning: Maybe polysynthetic
Fracture: Rare		Alteration: Sericite, chlorite, epidote
Relief: 1.66-1.67, High		Optical Sign: Biaxial (+)
Inclusion: None		Elongation Sign: (+)
Occurance: Metamorphic		
Distinctive Properties: High birefringence color, euhedral or subhedral, colorless		
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Plane Polarized	Mineral Name	Cross Polarized
	SILLIMANITE	
	Mineral Group: Silicates-Nesosilicates	
	Chemical Formula: Al₂SiO₅	
Color: Colourless, yellowish if fibrous		Birefringence-Interference color: 2nd-3rd order birefringence color
Pleochroism:None		Extinction: Parallel
Cleavage: Good in one direction		Twinning: None
Fracture: Possibly		Alteration: Disthene, andalusite
Relief: 1.65-1.66, High		Optical Sign: Biaxial (+)
Inclusion: Possibly		Elongation Sign: (-)
Occurance: Metamorphic		
Distinctive Properties: Fibrous shape, colorless, birefringence color		
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Plane Polarized	Mineral Name	Cross Polarized
	STAUROLITE	
	Mineral Group: Silicates- Nesosilicates	
	Chemical Formula: (Fe,Mg)₂(Al,Fe)₉Si₄O₂₂(O,OH)₂	
Color: Pale yellow	Birefringence-Interference color: 1st order birefringence color	
Pleochroism: Low	Extinction: Parallel	
Cleavage: Good in one direction	Twinning: Rarely	
Fracture: Rare	Alteration: Sericite, chlorite	
Relief: 1.73-1.74, Very high	Optical Sign: Biaxial (+)	
Inclusion: Possibly (quartz, opaque minerals)	Elongation Sign: (+)	
Occurrence: Metamorphic		
Distinctive Properties: Pale yellow, parallel extinction, relief, paragenesis with disthene		
Ankara University	GEO202 Optical Mineralogy	Prof. Dr. Yusuf Kağan KADIOĞLU