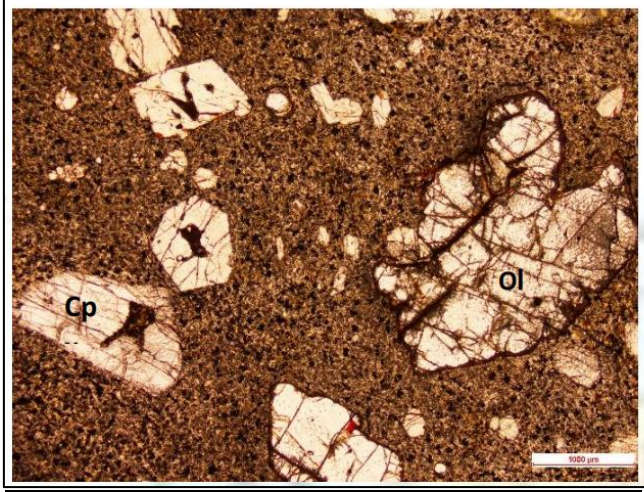
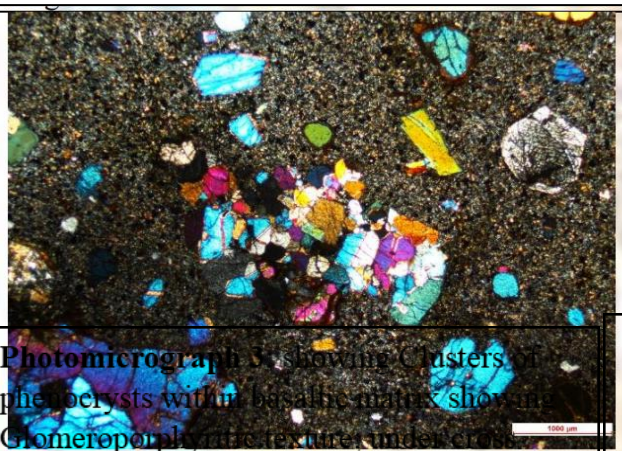
PHOTO MICROGRAPHS

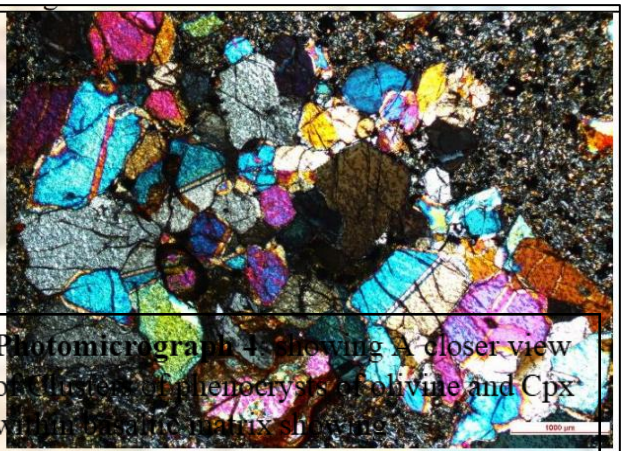


Photomicrograph 1: showing Large phenocrysts of olivine and clinopyroxene in very fine basaltic matric showing porphyritic texture; under plane polarized light; 2X magnification

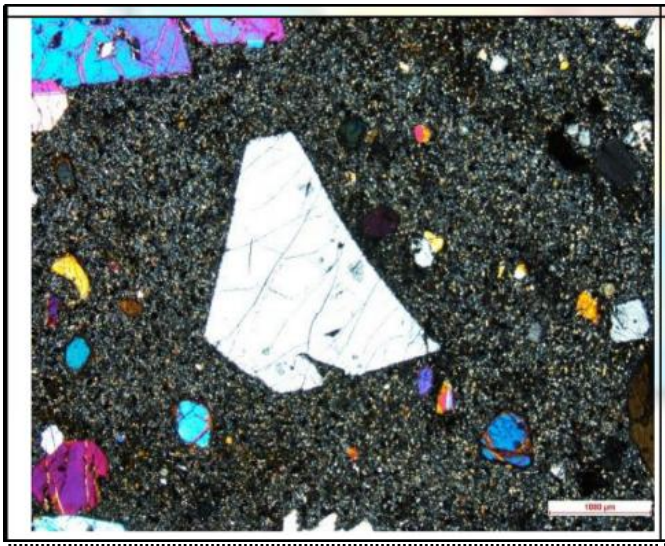
Photomicrograph 2: showing Large phenocrysts of olivine and clinopyroxene in very fine basaltic matric showing porphyritic texture; under cross polarized light; 2X



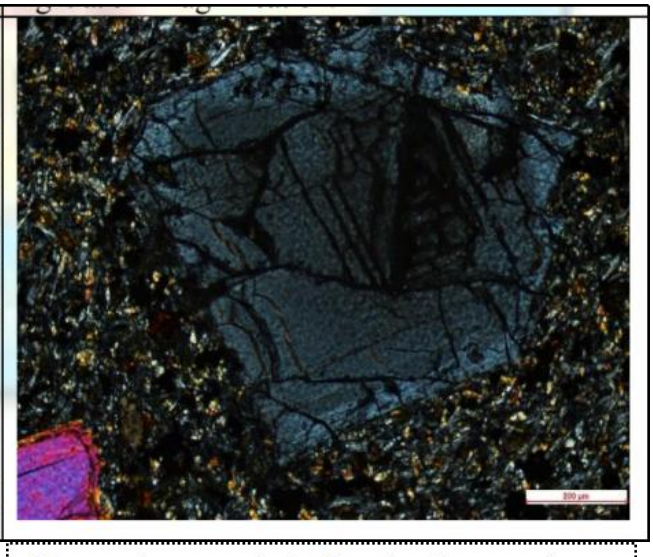
Photomicrograph 3: showing Clusters of phenocrysts within basaltic matrix showing Glomeroporphyritic texture; under cross polarized light at 2X magnification.



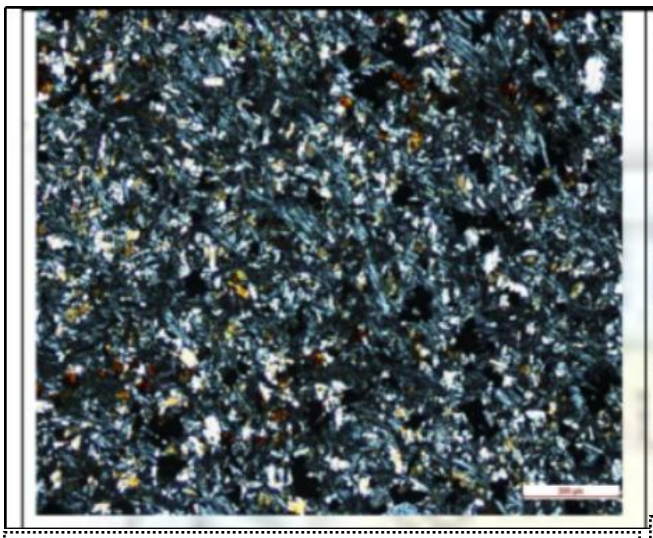
Photomicrograph 4: showing A closer view of clusters of phenocrysts of olivine and Cpx within basaltic matrix showing Glomeroporphyritic texture; under cross polarized light at 5X magnification.



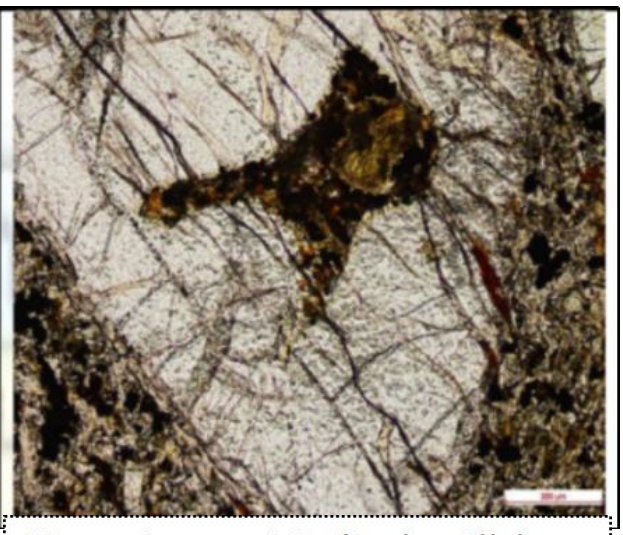
Photomicrograph 5: showing Bimodal distribution of phenocrysts size; very sharp edged phenocrysts of Olivine in a fine grained basaltic matrix



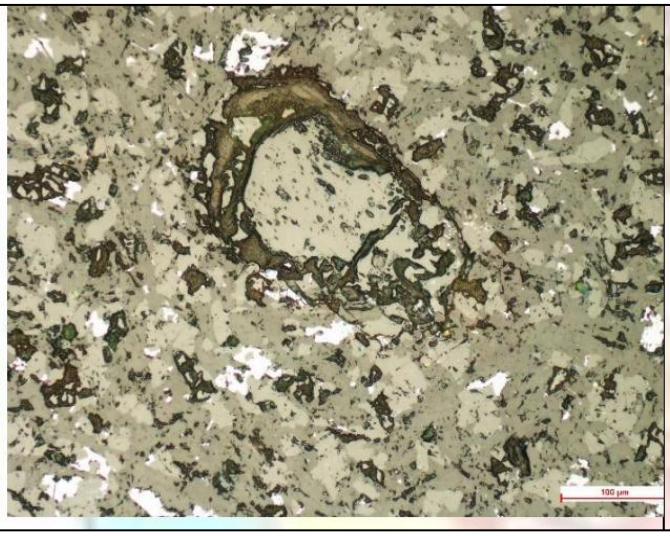
Photomicrograph 6: showing Fractured olivine in plagioclase-pyroxene rich matrix; small magnetites and rutiles are present in the matrix; under 10X magnification

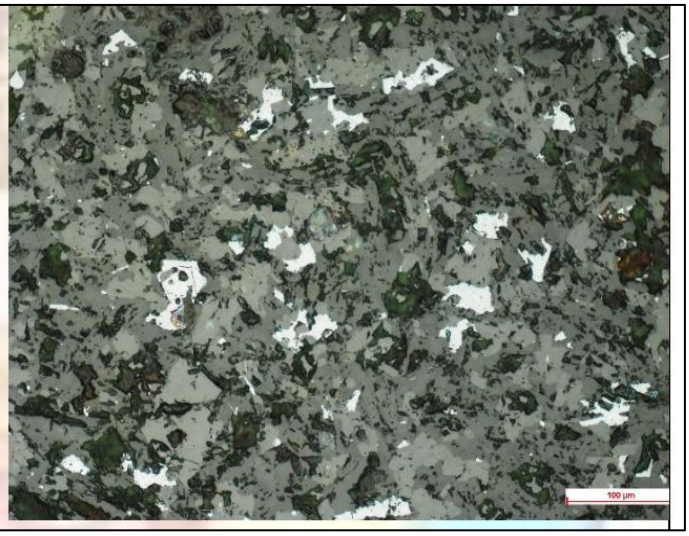


Photomicrograph 7: showing Intergranular texture defined by plagioclase laths and clinopyroxenes in basalt; magnetites are the only opaques present in the rock; under 10X magnification



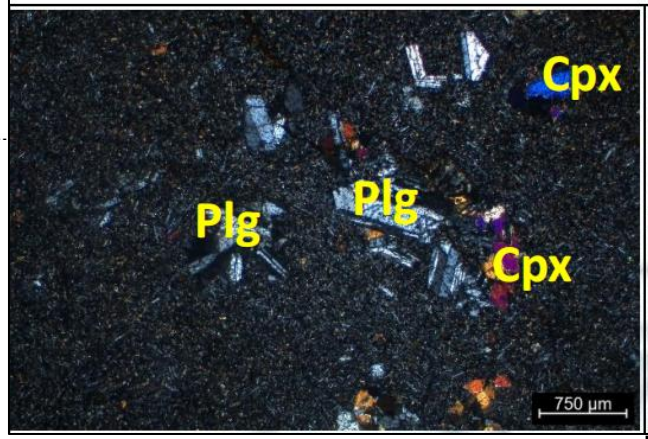
Photomicrograph 8: showing Olivine phenocrysts replaced by late biotite along fractures.

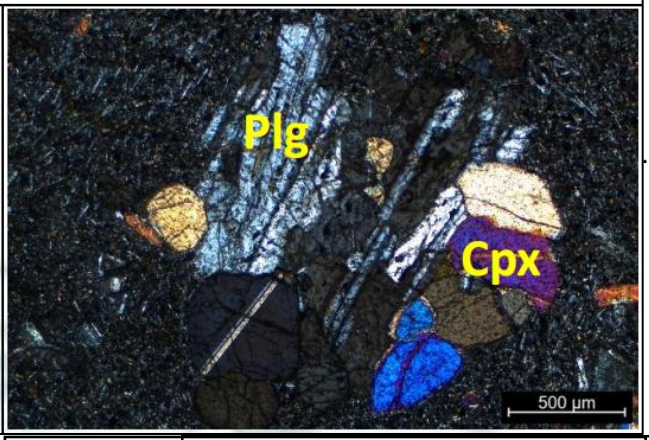




Photomicrograph 9: showing Small anhedral magnetites diseminated in matrix; under reflected light and 20X

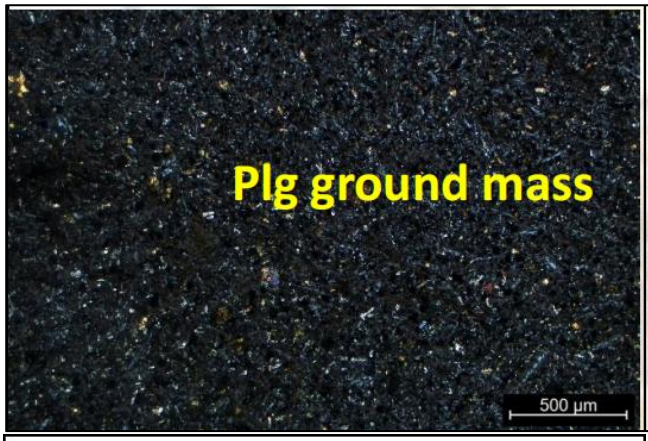
Photomicrograph 10: showing Small anhedral magnetites diseminated in matrix; under reflected light and 20X



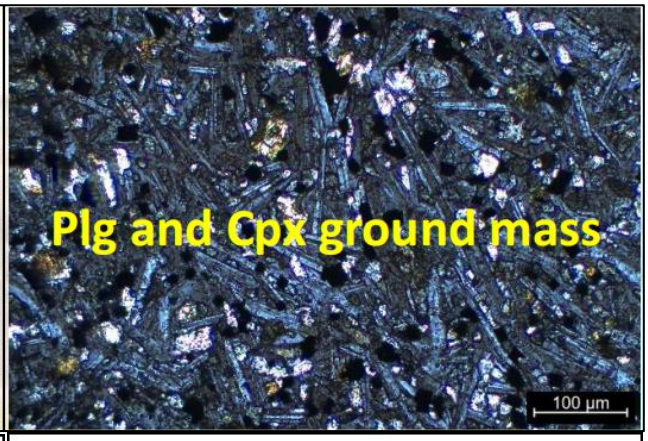


Photomicrograph 11 showing Photomicrograph showing presence of plagioclase (Plg) and Clinopyroxene (Cpx) in fine grained ground mass under transmitted light XPL (5X).

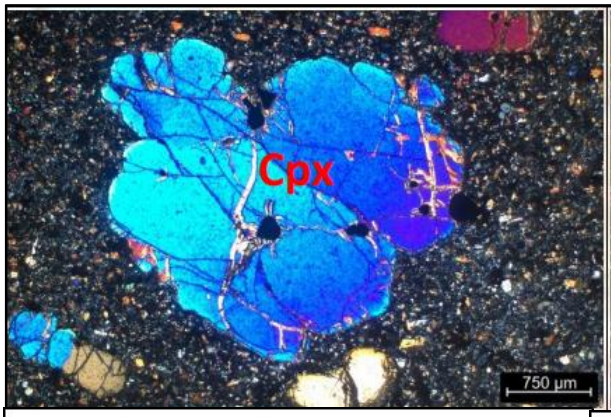
Ph 12 showing Photomicrograph Photomicrograph showing presence of plagioclase (Plg) and Clinopyroxene (Cpx) in fine grained ground mass under transmitted light XPL (5X).



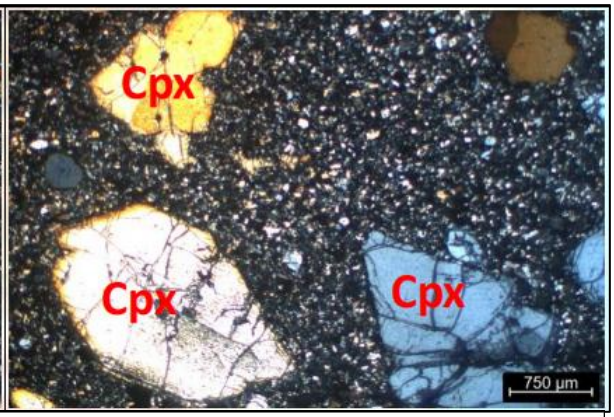
Photomicrograph 13: showing Photomicrograph showing presence of plagioclase (Plg) and Clinopyroxene (Cpx) phenocrysts in fine grained ground mass under transmitted light XPL (2X).



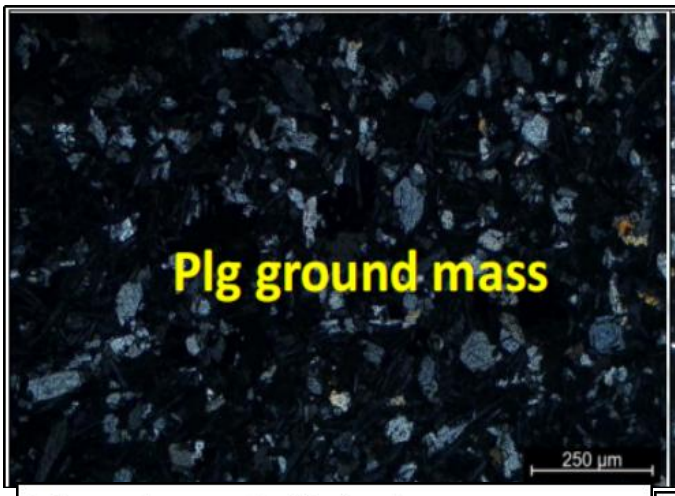
Photomicrograph 14:showing Photomicrograph showing presence of plagioclase (Plg) and Clinopyroxene (Cpx) in fine grained ground mass under transmitted light XPL (20X)



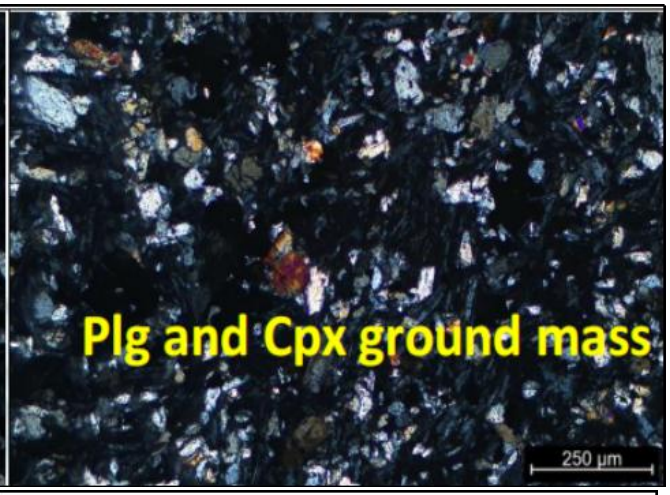
Photomicrograph 15:showing Photomicrograph showing presence of Clinopyroxene (Cpx) phenocrysts in fine grained ground mass under transmitted light XPL (2X).



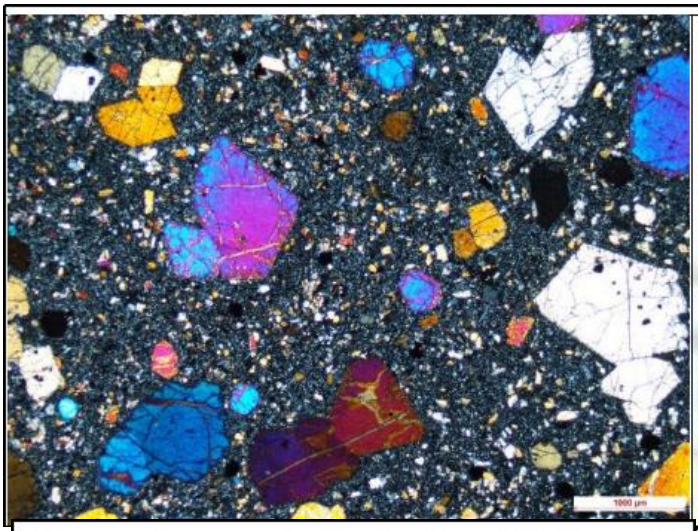
Photomicrograph 16: Fig showing Photomicrograph showing presence of Clinopyroxene (Cpx) phenocrysts in fine grained ground mass under transmitted light XPL (2X)



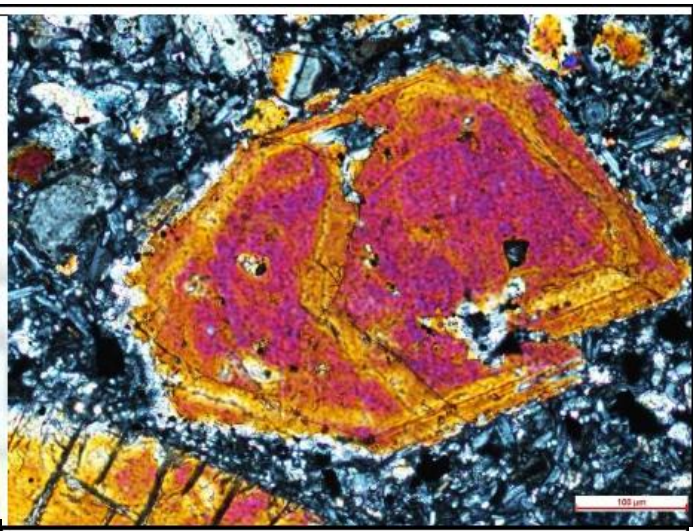
Photomicrograph 17: showing Photomicrograph showing presence of plagioclase (Plg) andClinopyroxene (Cpx) in fine grained ground mass under transmitted light XPL (10X)



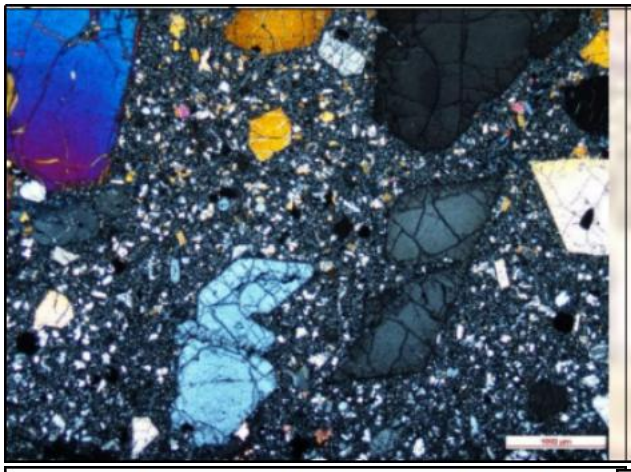
Photomicrograph 18: showing Photomicrograph showing presence of plagioclase (Plg) and Clinopyroxene (Cpx) in fine grained ground mass under transmitted light XPL (10X)



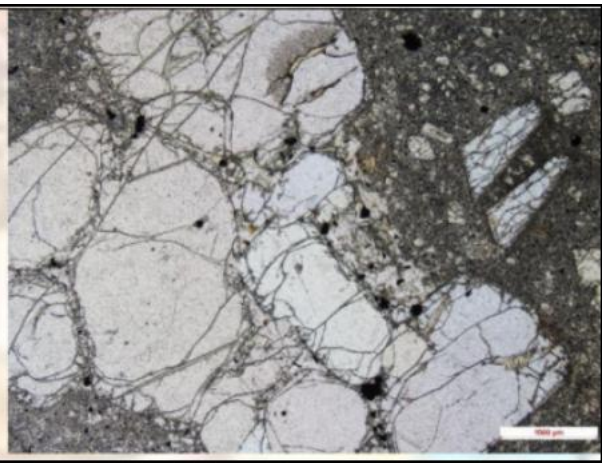
Photomicrograph 19:showing Olivine and clinopyroxene phenocrysts in very fine grained plagioclase-pyroxene rich basaltic matrix; porphyritic texture; also note the fusion of two phenocrysts; under cross polarized light and at 2X magnification



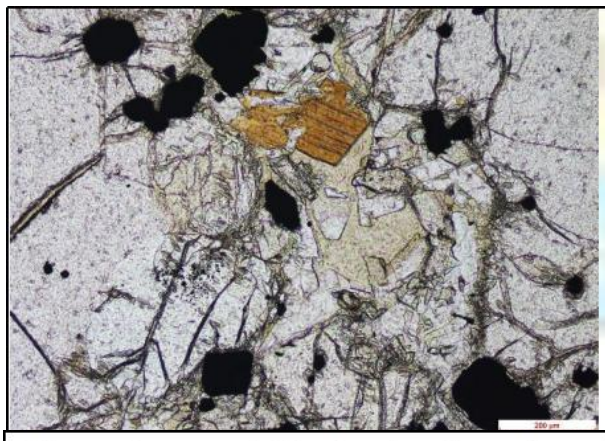
Photomicrograph 20: showing Compositional zoning in olivine phenocrysts; note the plagioclase rich matrix; under 20X magnification



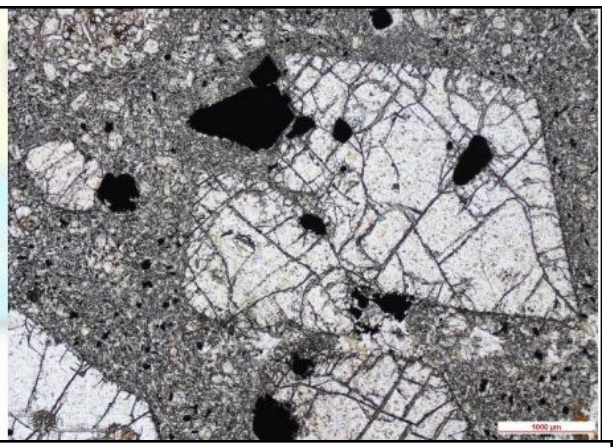
Photomicrograph 21 :showing Bimodal distribution of sizes of phenocrysts; euhedral phenocrysts often broken and subsequently filled up by basaltic crystallization; 2X magnification



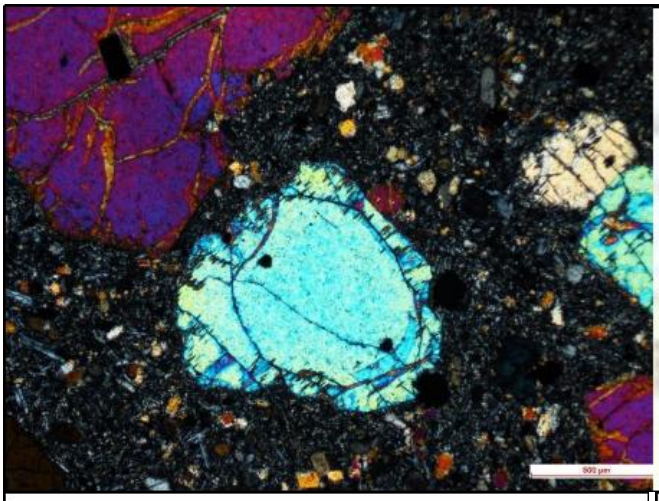
Photomicrograph 22: showing Glomeroporphyritic texture defiend by clusters of olivine crystals in a basaltic matrix; 2X magnification



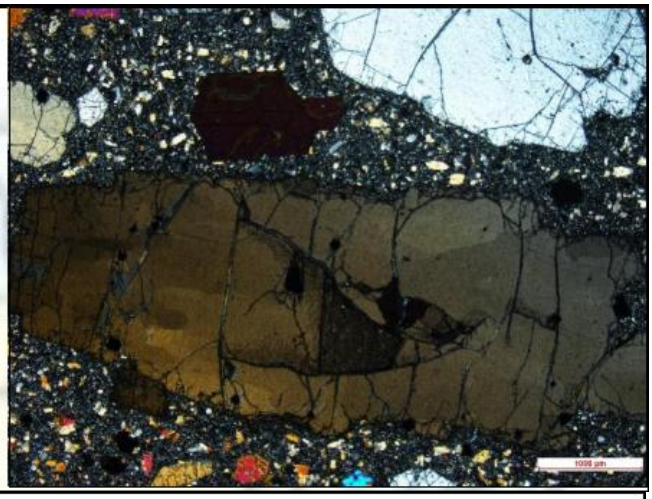
Photomicrograph 23 :showing Secondary alteration of olivine and pyroxene by biotite and serpentinite and chlorite; note the close association of olivine and magnetite; under plane polarized light and 10X magnification



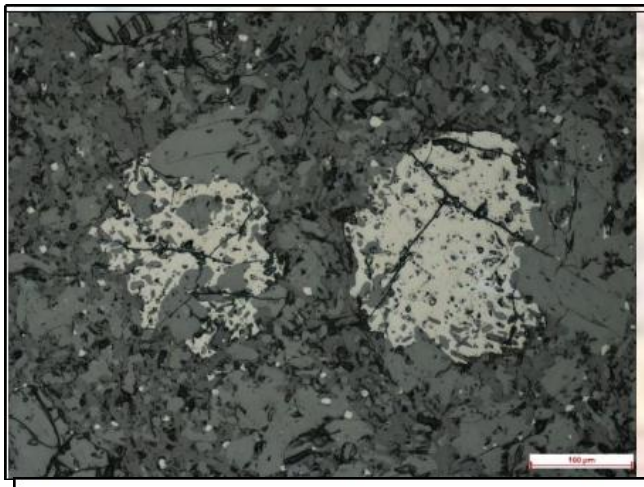
Photomicrograph 24: showing Close association of magnetite and olivine; magnetite also disseminated in matrix; under 2X magnification



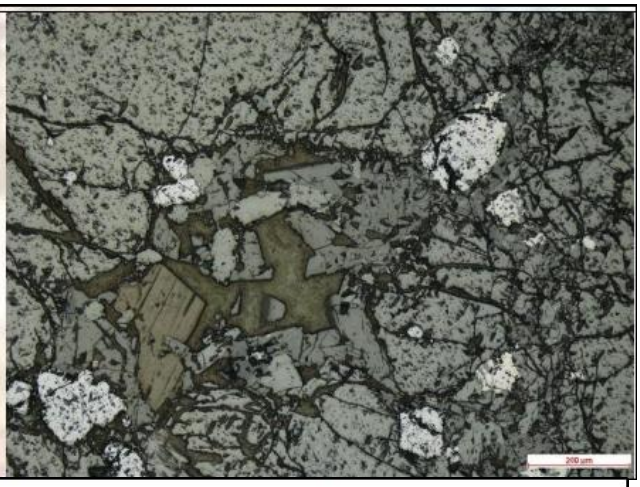
Photomicrograph 25: showing Fractured and altered outer rim of Olivine phenocrysts showing syn crystallization deformation



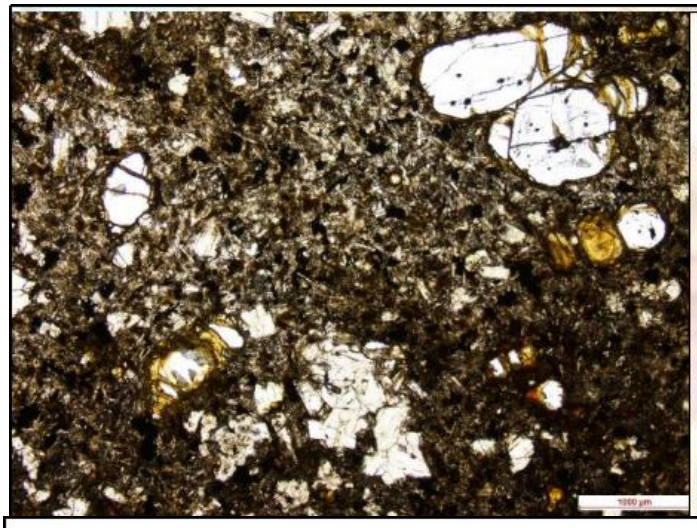
Photomicrograph 26: showing Undulose extinction in clinopyroxene indicating grain scale ductile deformation.



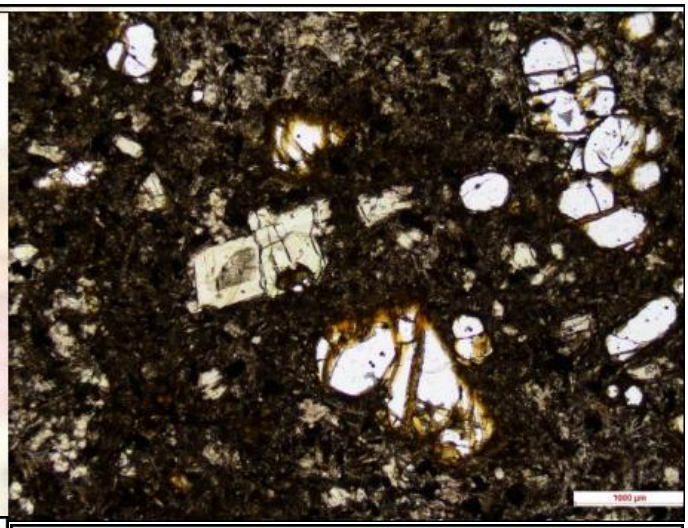
Photomicrograph 27: showing Anhedral, skeletal shaped large magnetite intergrown with Olivine phenocrysts; small magnetite as dissemination within matrix.



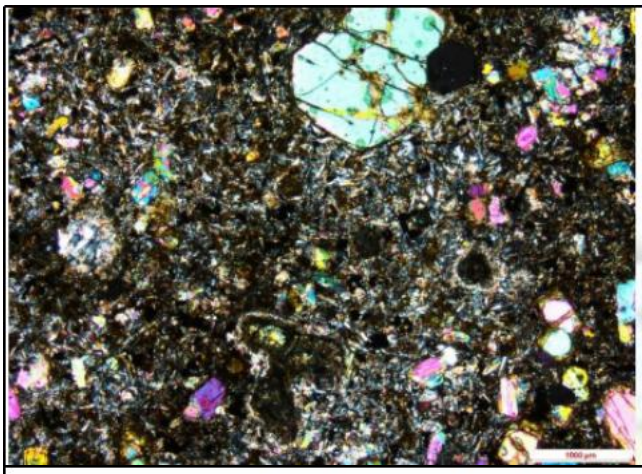
Photomicrograph 28: showing Disseminated magnetite within alteration zones of the basalt.



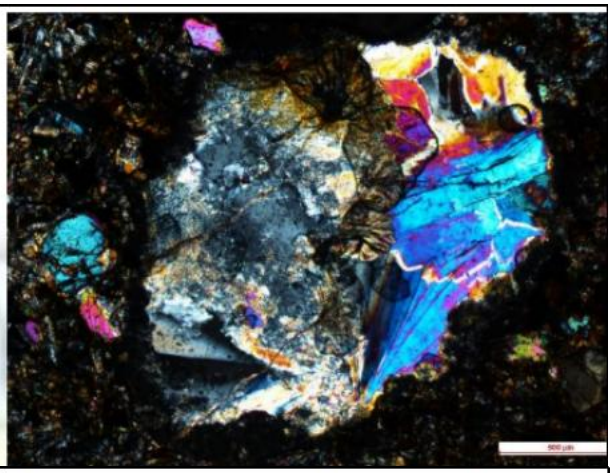
Photomicrograph 29 showing Porphyritic texture with olivine phenocrysts in fine grained plagioclase clinopyroxene rich basaltic matrix; under 2X magnification



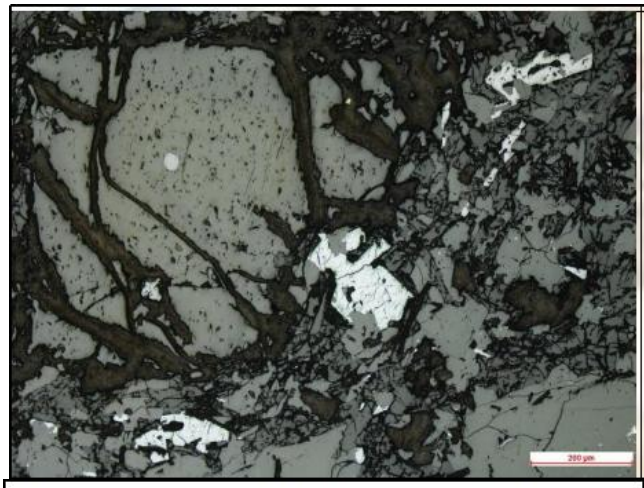
Photomicrograph 30 showing Euhedral phenocrysts of Clinopyroxene and olivine in basaltic matrix; note the cluster of phenocrysts defining glomero-porphyritic texture; under 2X magnification



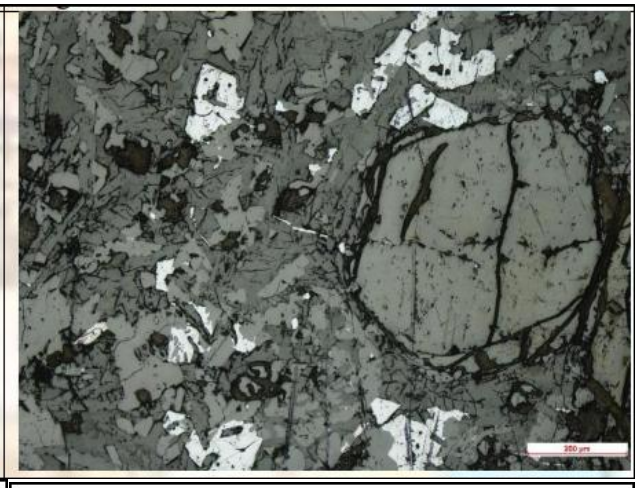
Photomicrograph 31: showing Note the microlites of plagioclase oriented haphazardly and interstitial spaces filled by pyroxene defining intergranular texture; also note the rounded vesicles.



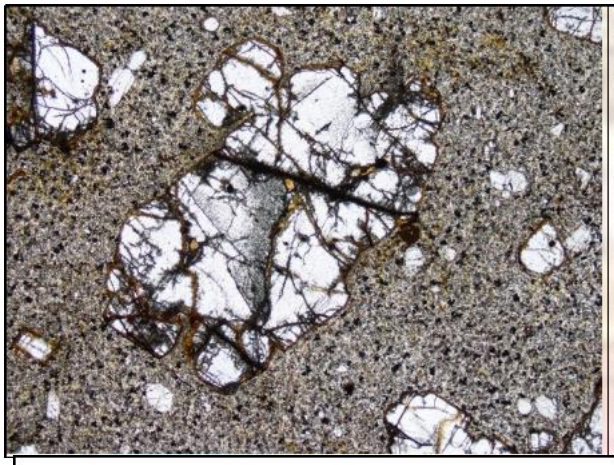
Photomicrograph 32: showing Sub-rounded vesicles within basaltic matrix, filled up by quartz crystals grew perpendicular to the wall of vesicles; under 5X magnification.



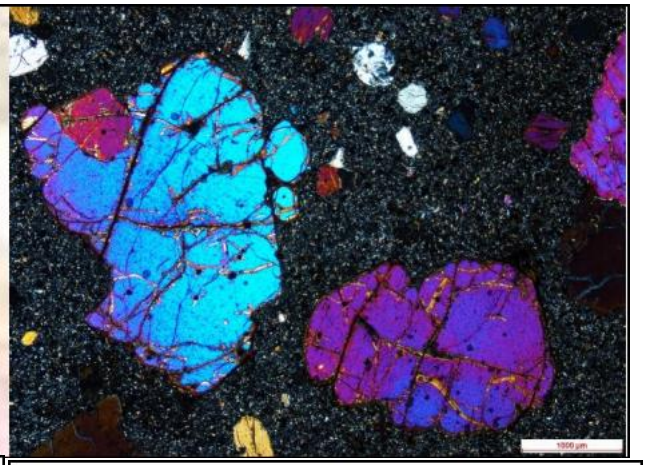
Photomicrograph 33: showing Anhedral magnetite occurring within basalt and closely associated with phenocrysts; under reflected light and 10X magnification



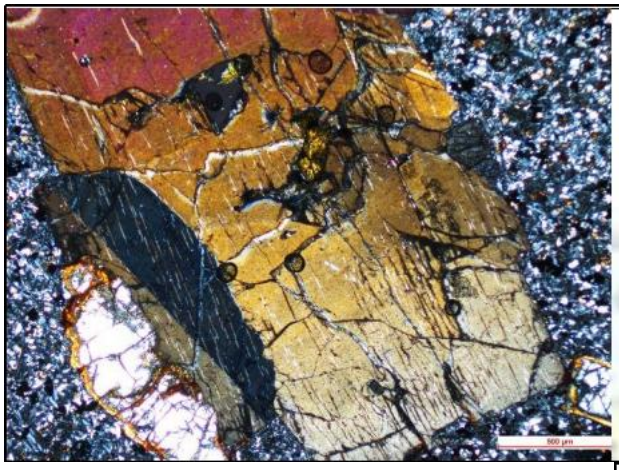
Photomicrograph 34: showing Anhedral and small magnetite as dissemination within basalt; under reflected light and 10X magnification



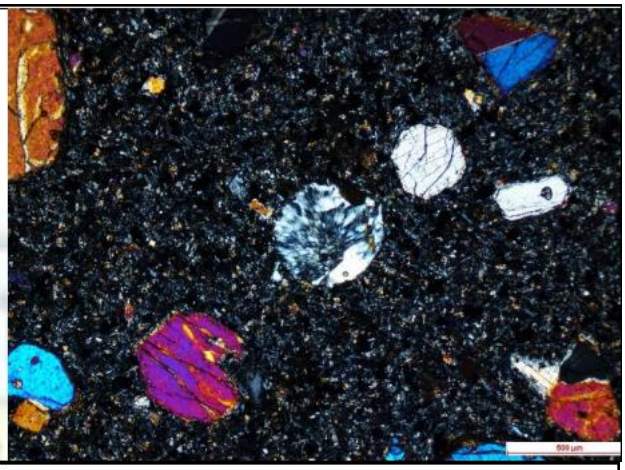
Photomicrograph 35: showing Fractured olivine phenocrysts with alteration along margin and fracture in a fine grained magnetite rich basaltic matrix



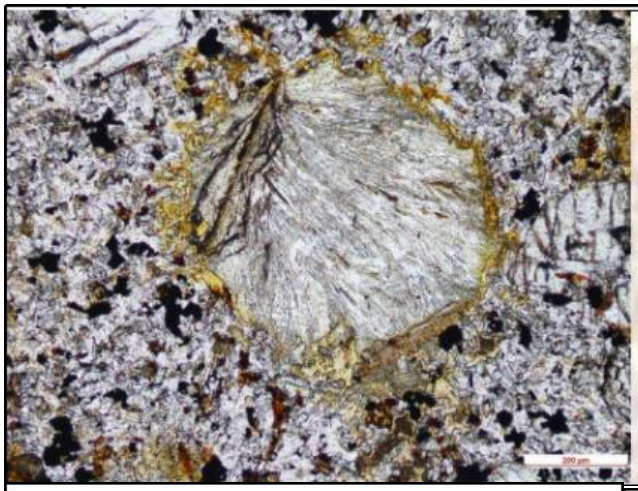
Photomicrograph 36: showing Bimodal distribution of phenocrysts size in basalt; under cross polarized light and 2X magnification



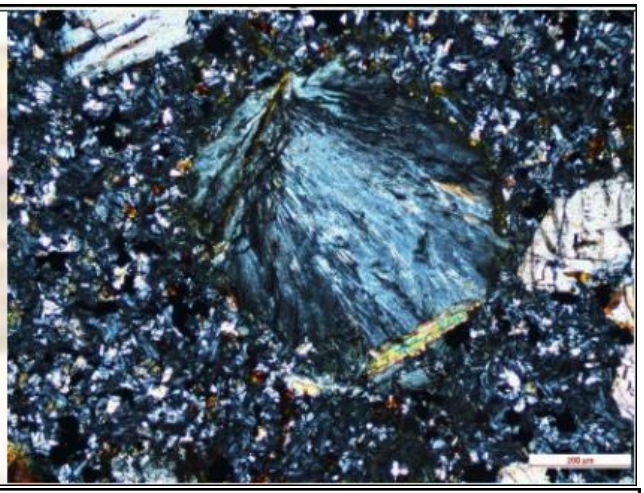
Photomicrograph 37 :showing Clinopyroxene and olivine phenocrysts within basalt; note the exsolution lamellae within clinopyroxene



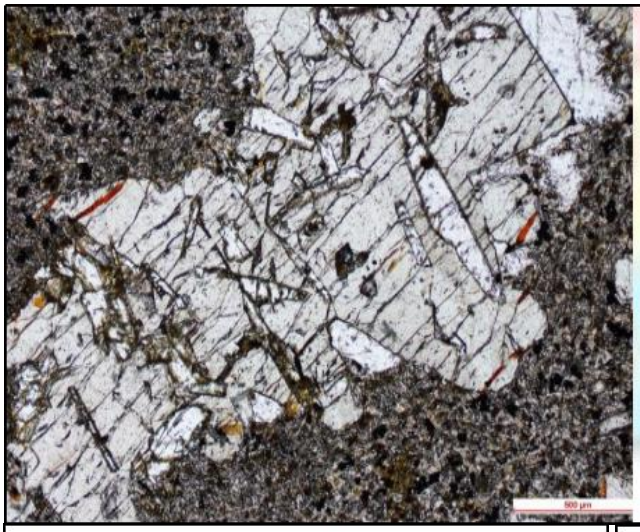
Photomicrograph 38 :showing Small, rounded filled up vesicles within basaltic matrix; quartz crystals have filled up the vesicles; under 5X magnification.



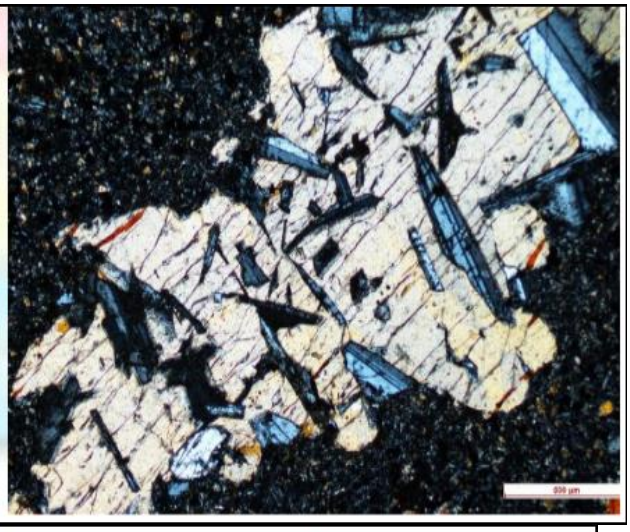
Photomicrograph 39: showing Olivine pseudomorph; secondary serpentine and a very few biotite replace the olivine phenocrysts completely, keeping intact its boundary and shape; also note the matrix rich in small magnetite and rutile.



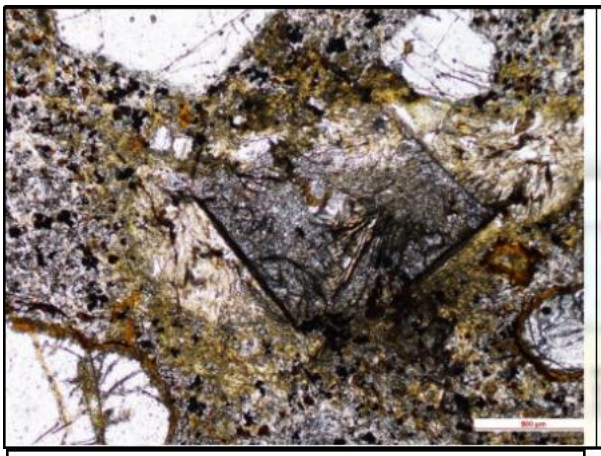
Photomicrograph 40: showing same as left side one under cross polarized light and 10X magnification.



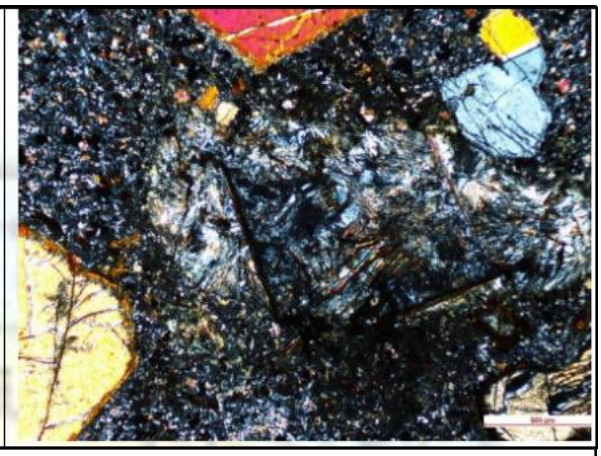
Photomicrograph 41: showing Large anhedral clinopyroxene phenocrysts intergrown with coarse plagioclase laths indicating eutectic crystallization. Under 5X magnification.



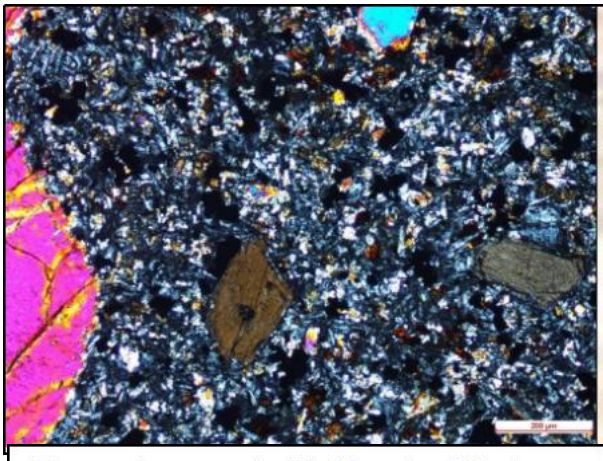
Photomicrograph 42: showing Same as leftside one under cross polarized light and at 5X magnification.



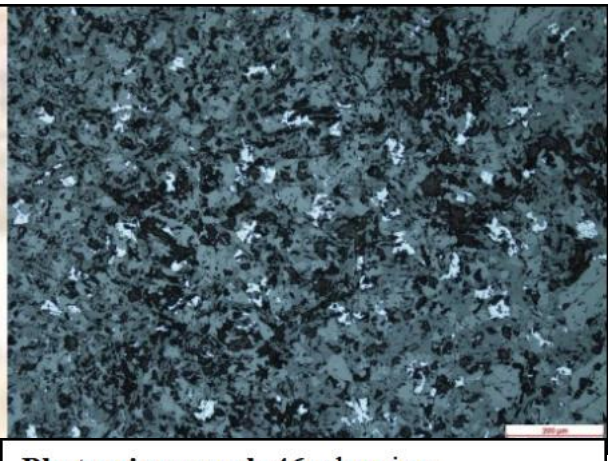
Photomicrograph 43: showing Olivine pseudomorph; secondary serpentine replace the olivine phenocrysts completely, keeping intact its boundary and shape; also note the magnetite rich matrix.



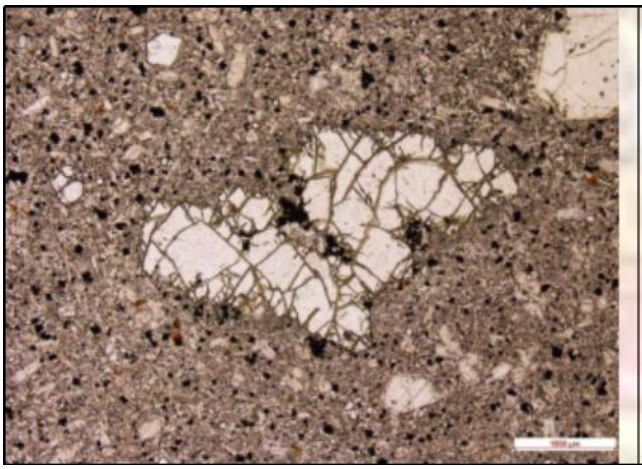
Photomicrograph 44: showing Olivine pseudomorph; secondary serpentine replace the olivine phenocrysts completely, keeping intact its boundary and shape; also note the magnetite rich matrix



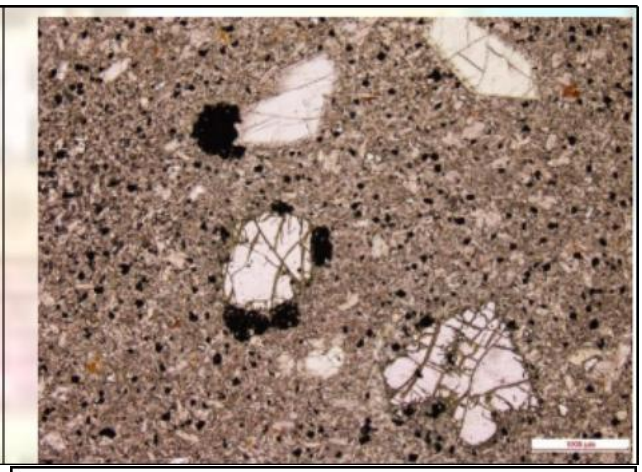
Photomicrograph 45: Showing Matrix rich in plagioclase laths with interstitial clinopyroxene and magnetite; under 10X magnification



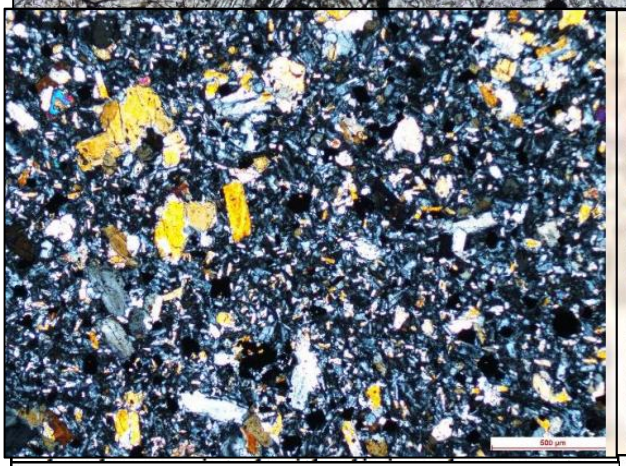
Photomicrograph 46: showing Disseminated and tiny magnetite in basalt; under reflected light



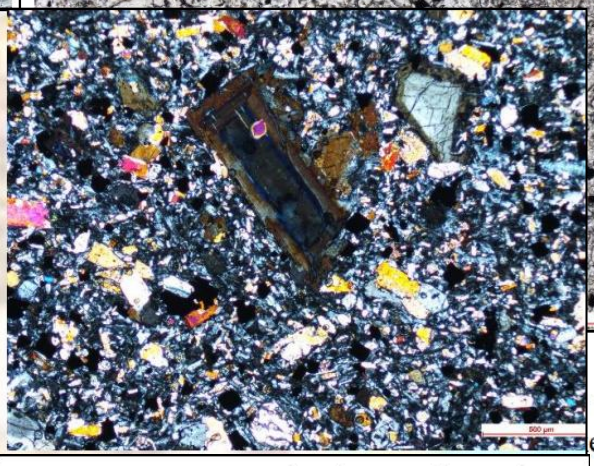
Photomicrograph 47: showing Clinopyroxene and olivine phenocrysts; small magnetite disseminated in matrix



Photomicrograph 48: showing Porphyritic basalt with phenocrysts of olivine associated with large magnetite clusters



Photomicrograph 51:showing Bimodal distribution of size of phenocrysts; smaller sized phenocrysts of plagioclase and pyroxene in basaltic matrix; under 5X magnification under crossed polar



Photomicrograph 52: showing Zoning and exsolution lamellae and twinning in clinopyroxene phenocrysts; under 5X magnification.

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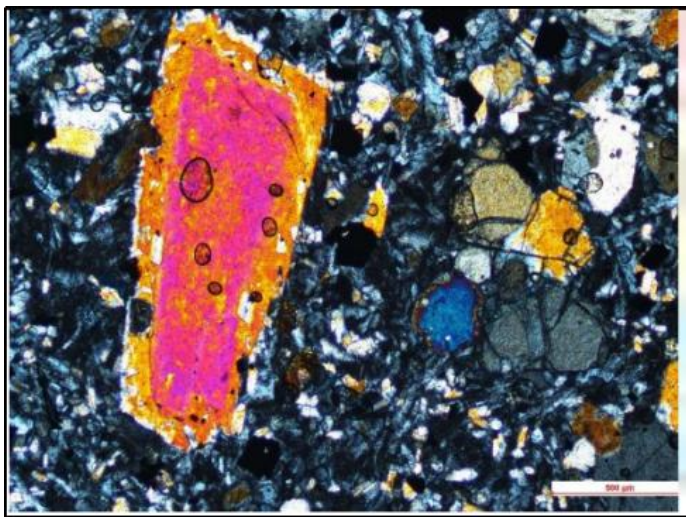
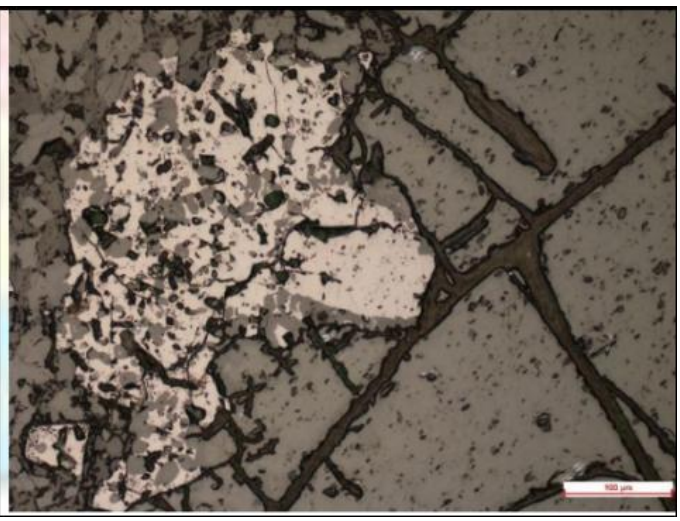
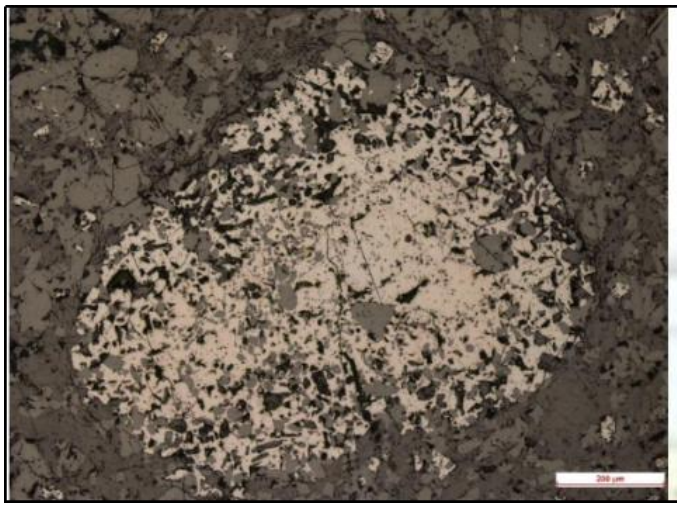


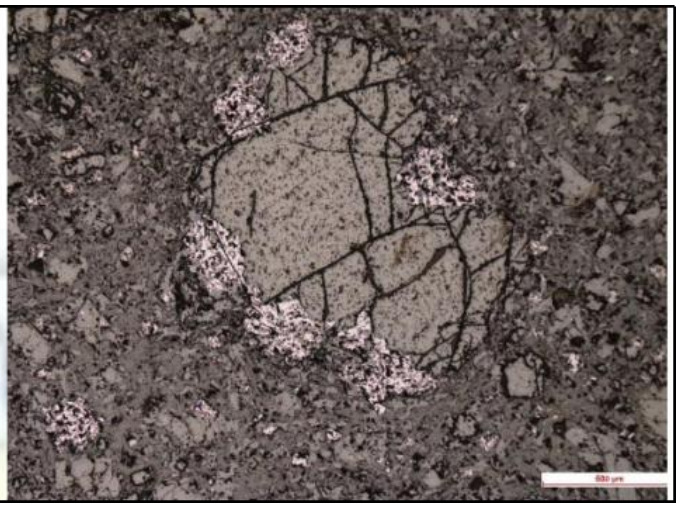
Photomicrograph 53: showing Compositional zoning in olivine phenocrysts.



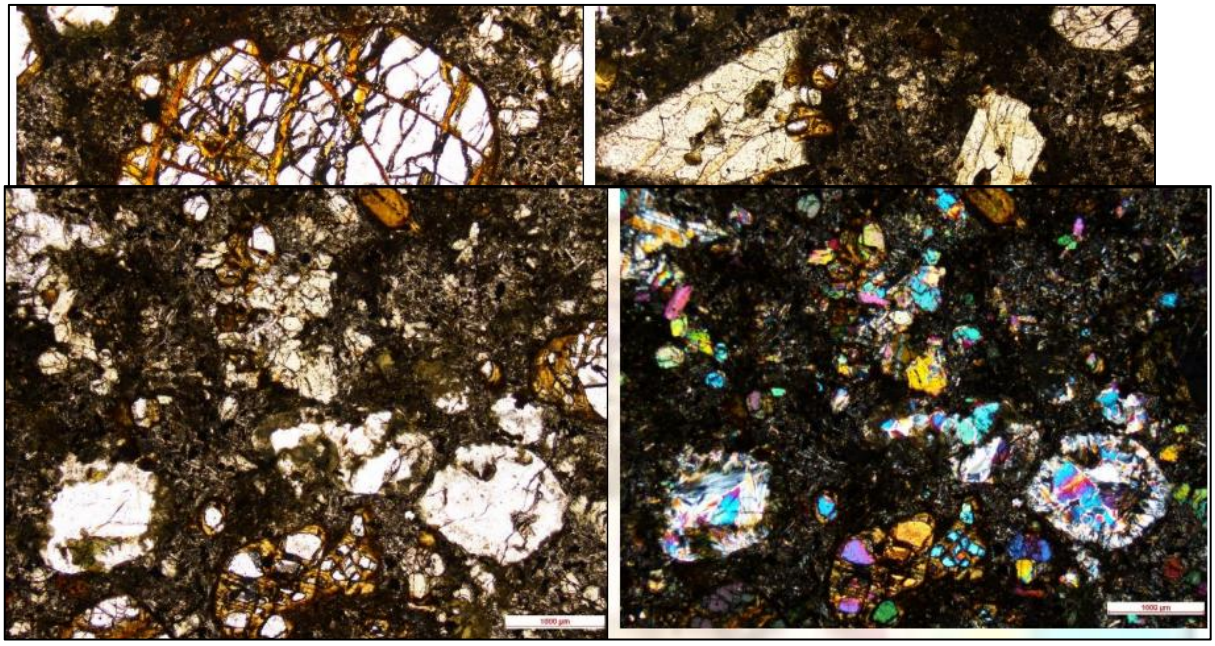
Photomicrograph 54: showing Olivine phenocrysts and anhedral magnetite intergrown with olivine; under reflected light and 20X magnification



Photomicrograph 55:with silicate as intergrown phase; under reflected light and 10X magnification

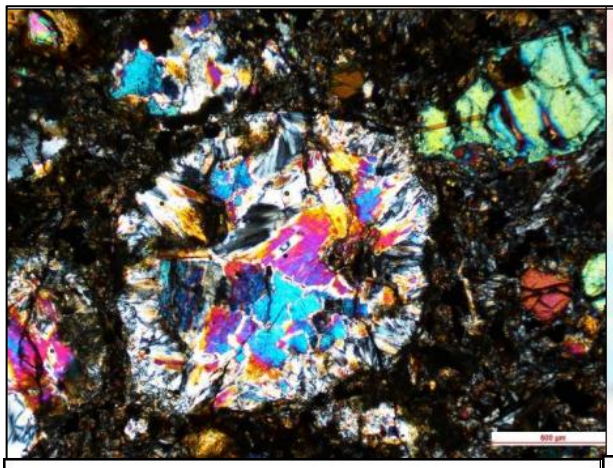


Photomicrograph 56:showing Olivine phenocrysts surrounded by anhedral magnetite; under reflected light and 5X magnification.

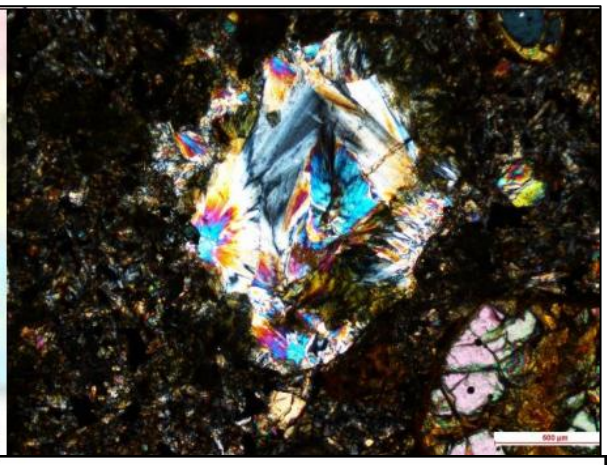


Photomicrograph 59: showing Small rounded vesicles in basalt; also note the fractured olivine phenocrysts.

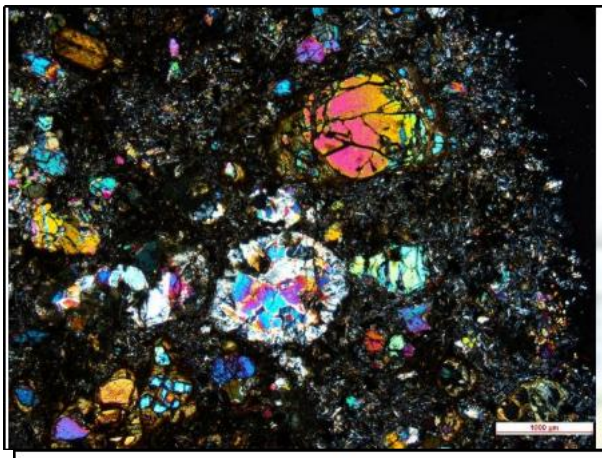
Photomicrograph 60: under cross polarised light; vesicles are filled up with quartz;note the microlites of plagioclase and glass defining the hyalopilitic texture.



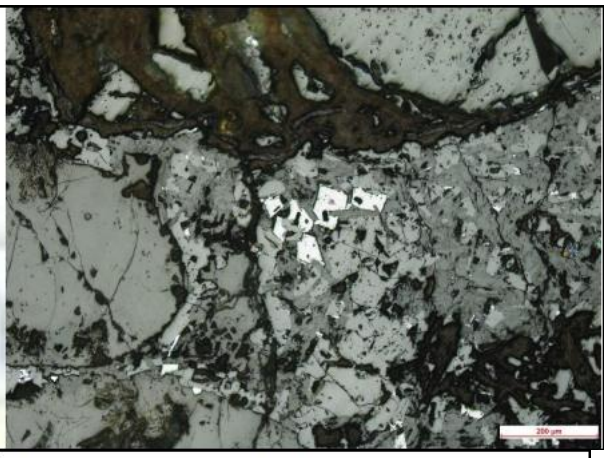
Photomicrograph 61: showing higher magnification of the vesicles filled up with quartz.



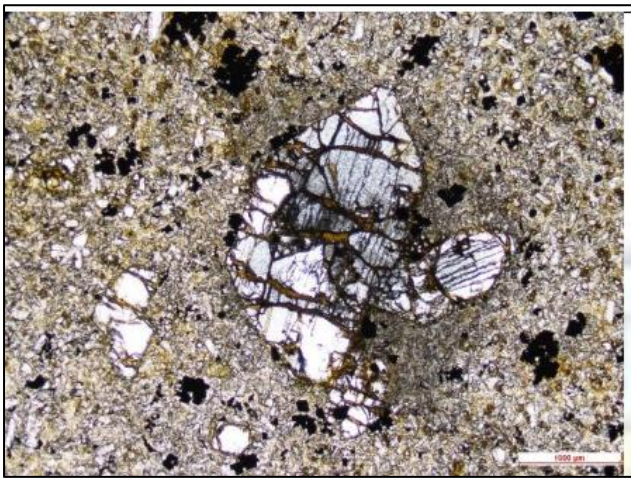
Photomicrograph 62:is Same as upper right at higher magnification and closer look at the vesicles.



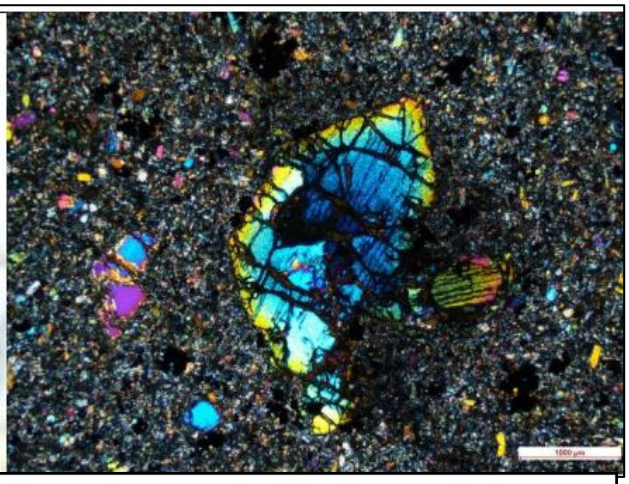
Photomicrograph 63: showing Porphyritic and hyalopilitic textures of the rock



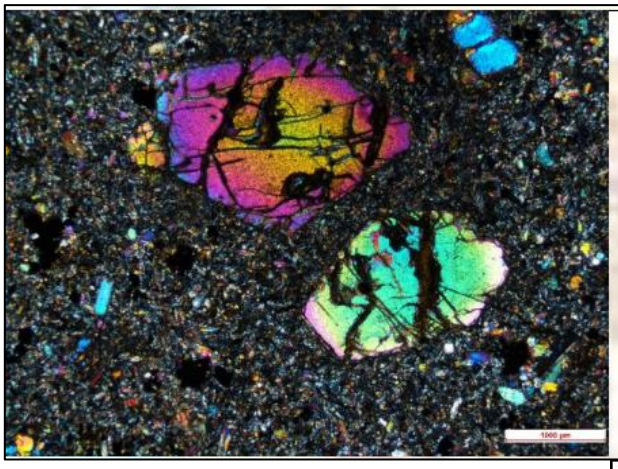
Photomicrograph 64: showing Tiny magnetite disseminated in matrix; under reflected light and 10X magnification.



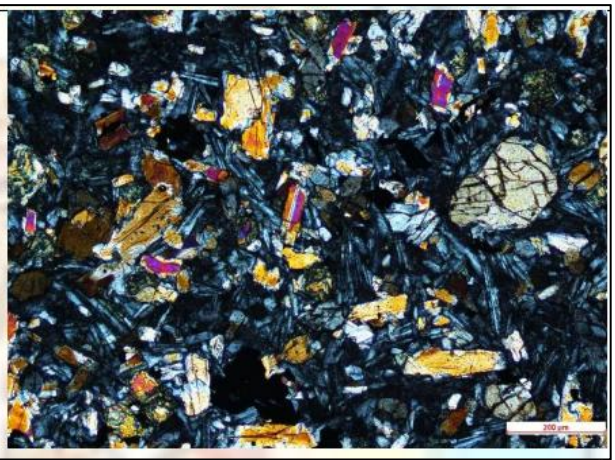
Photomicrograph 65:showing Euhedral and fractured olivine phenocrysts in fine grained basaltic matrix defining porphyritic texture.



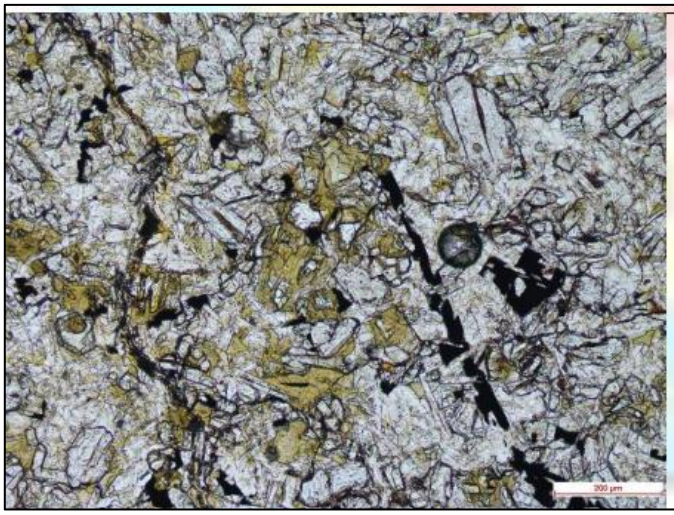
Photomicrograph 66:is Same as left one; under cross polarized light; also note the compositional zoning in olivine.



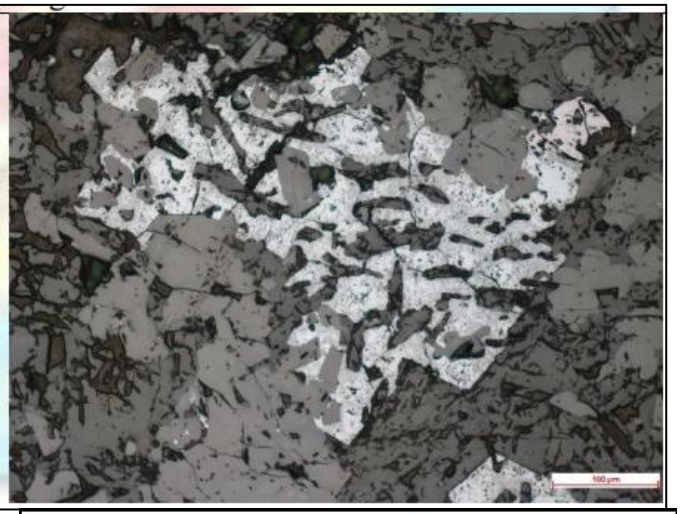
Photomicrograph 67:showing Euhedral, large and fractured olivine phenocrysts with compositional zoning in fine grained basaltic matrix; under 2X magnification



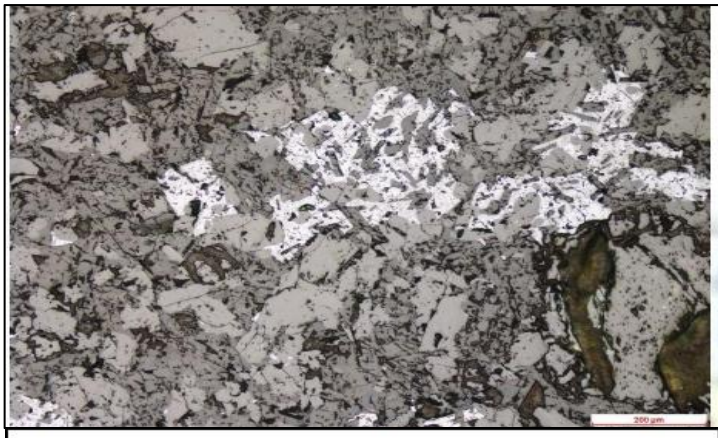
Photomicrograph 68: showing Plagioclase laths and interstitial clinopyroxene define the intergranular texture of basalt; under cross polarized light and at 10X magnification



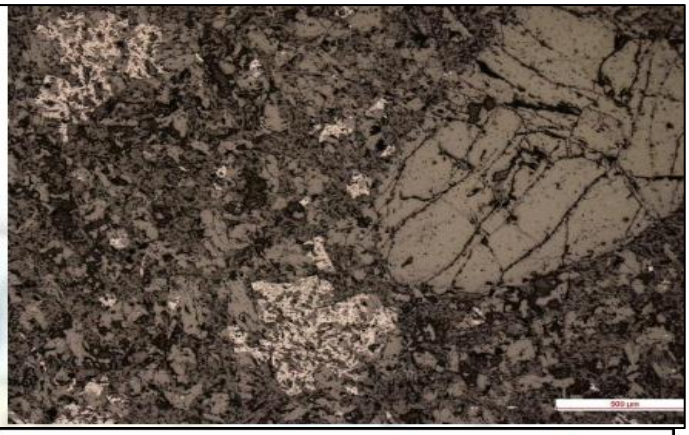
Photomicrograph 69: showing Chloritic alteration of the matrix; note the anhedral magnetite grains disseminated in matrix



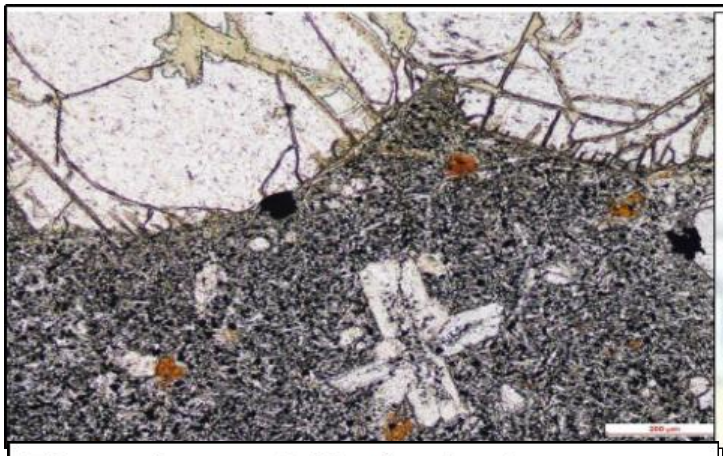
Photomicrograph 70:showing Anhedral magnetite intergrown with silicates; under reflected light and at 20X magnification.



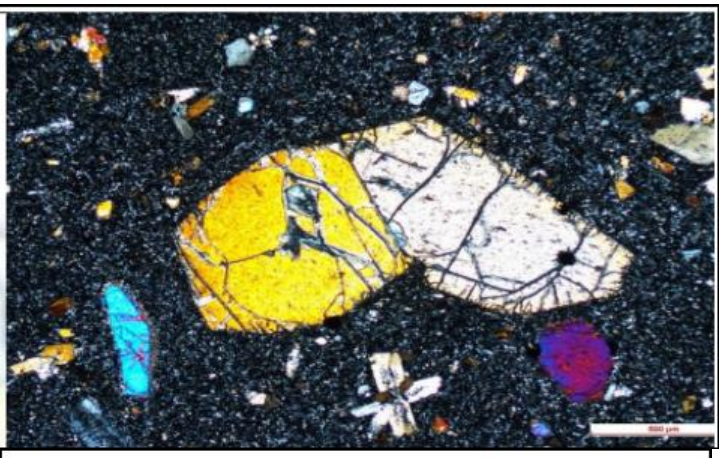
Photomicrograph 71: showing Anhedral magnetite intergrown with silicates; under reflected light and at 10X magnification



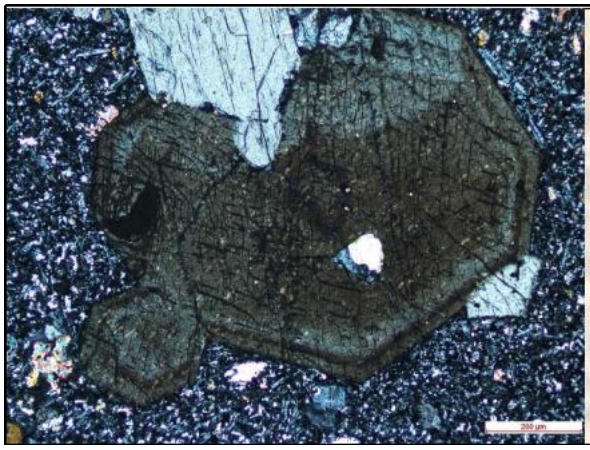
Photomicrograph 72:showing Anhedral magnetite intergrown with silicates; tiny magnetites disseminated in matrix; under reflected light and at 20X magnification.



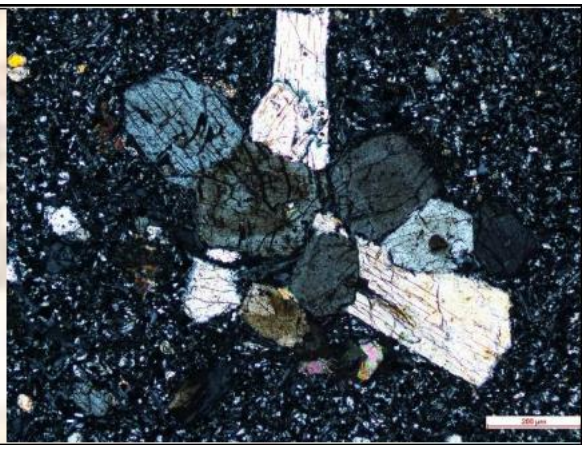
Photomicrograph 73: showing Large euhedral and fractured olivine phenocrysts; note the bimodal phenocrysts size distribution; magnetite rich matrix and phenocrysts of clinopyroxene forming star shaped cluster.



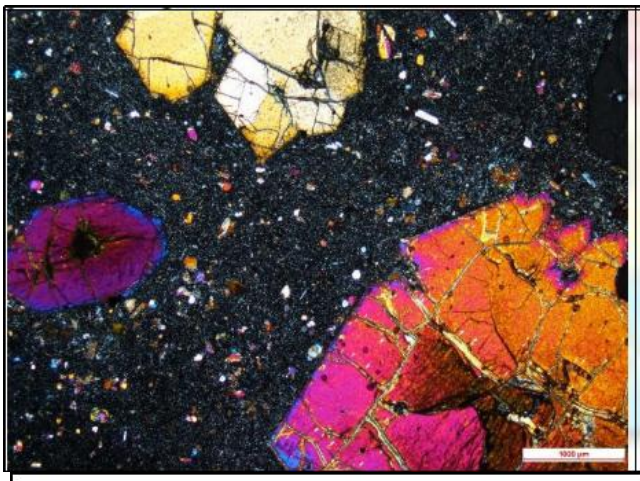
Photomicrograph 74: Large euhedral and fractured olivine phenocrysts; note the bimodal phenocrysts size distribution; magnetite rich matrix and phenocrysts of clinopyroxene forming star shaped cluster under cross polarised light



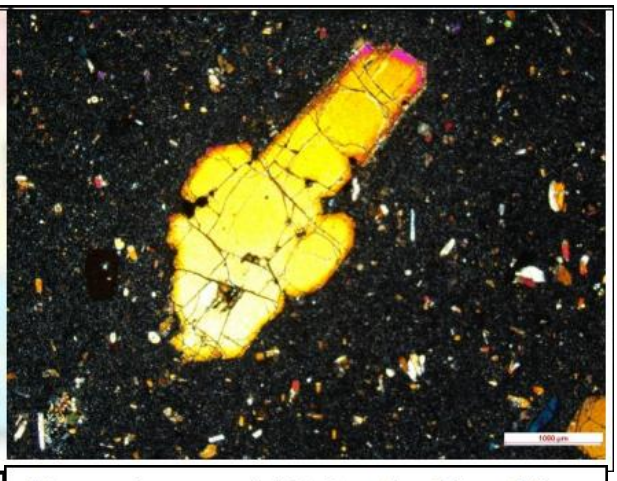
Photomicrograph 75: showing Compositional oscillatory zoning in clinopyroxene basal section indicating different pulses of magma influx



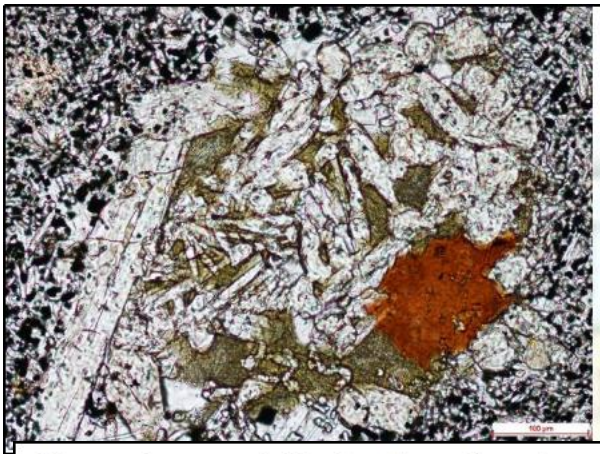
Photomicrograph 76: showing Compositional oscillatory zoning in clinopyroxene basal section indicating different pulses of magma influx



Photomicrograph 77: showing Bimodal distribution in phenocryst's size; note the large olivine phenocrysts which crystallized early; relatively smaller pyroxene phenocrysts disseminated in microlite and glassy matrix of basalt.

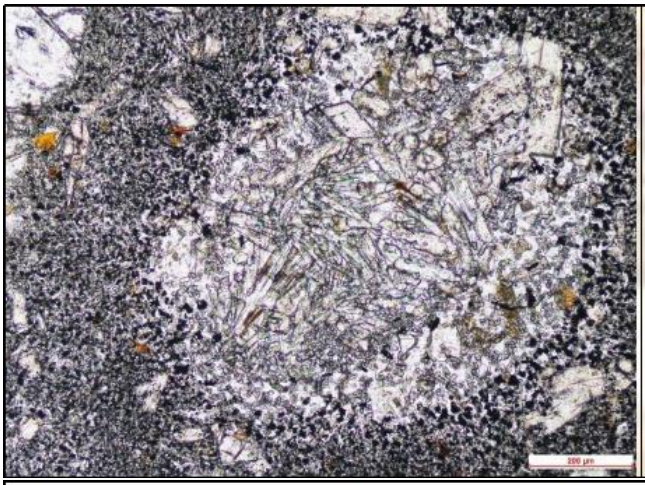


Photomicrograph 78:showing Bimodal distribution in phenocryst's size; note the large olivine phenocrysts which crystallized early; relatively smaller pyroxene phenocrysts disseminated in microlite and glassy matrix of basalt.

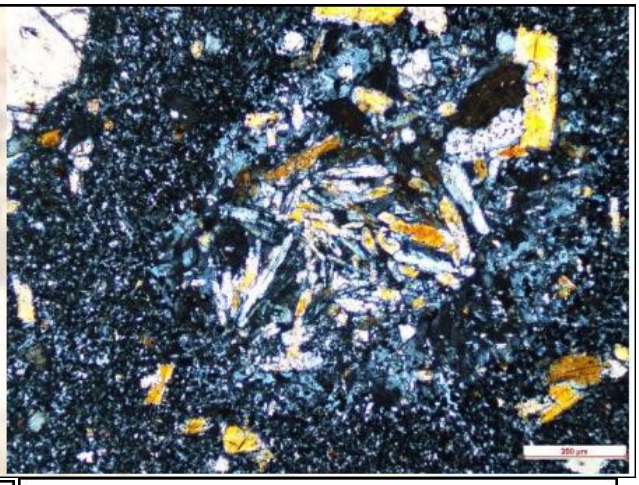


Photomicrograph 79:showing Alteration of clinopyroxene phenocrysts and matrix phases by chlorite and biotite; note the magnetite concentration in matrix.

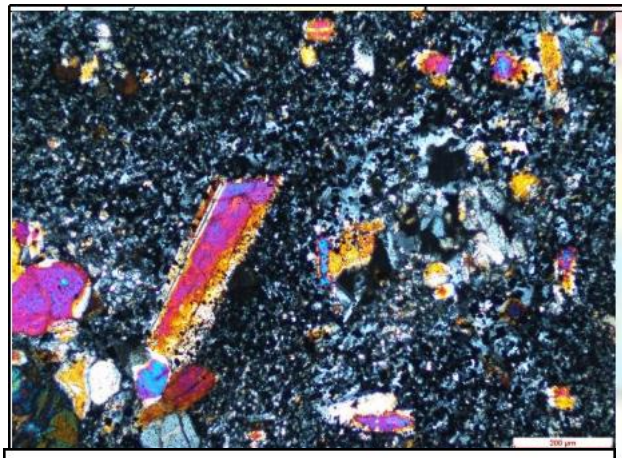
Photomicrograph 80: showing Olivine phenocryst altered along fractures by biotite; biotite also alters the matrix phases.



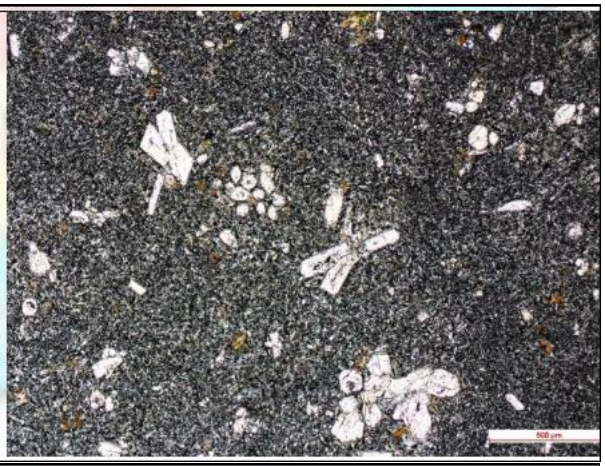
Photomicrograph 81: showing Rounded nodular part with coarser clinopyroxene and plagioclase grains; magnetite is completely absent in these coarser part.



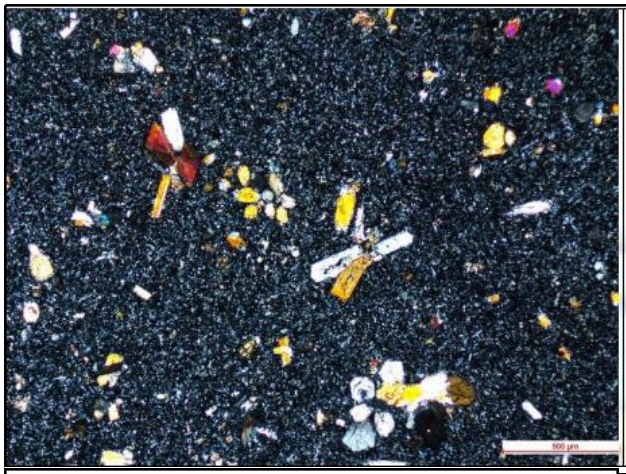
Photomicrograph 82:showing Rounded nodular part with coarser clinopyroxene and plagioclase grains; magnetite is completely absent in these coarser part under cross polarised light.



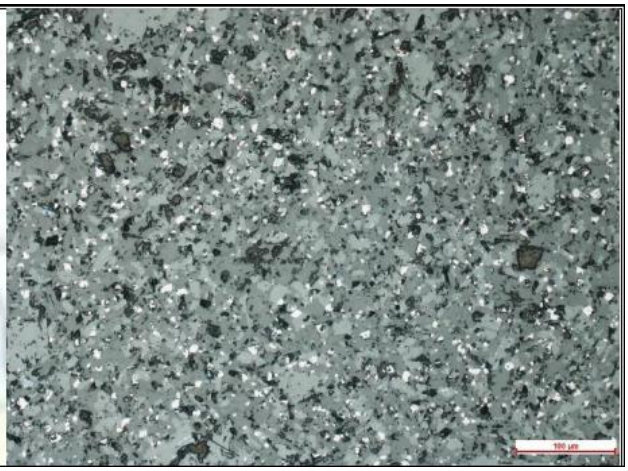
Photomicrograph 83:showing Rounded nodular part with coarser clinopyroxene and plagioclase grains; magnetite is completely absent in these coarser part under cross polarised light.



Photomicrograph 84: showing Clusters of phenocrysts within microlite and glass enriched matrix



Photomicrograph 85: showing Clusters of phenocrysts within microlite and glass enriched matrix



Photomicrograph 86: showing Small magnetites as disseminated in matrix.