

*

mvalizad@chamran.ut.ac.ir :

*

(/ / : / / :)

/

(Stocklin & Setudehnia 1991)

()

(Mohajjel & Fergusson 2000)

)

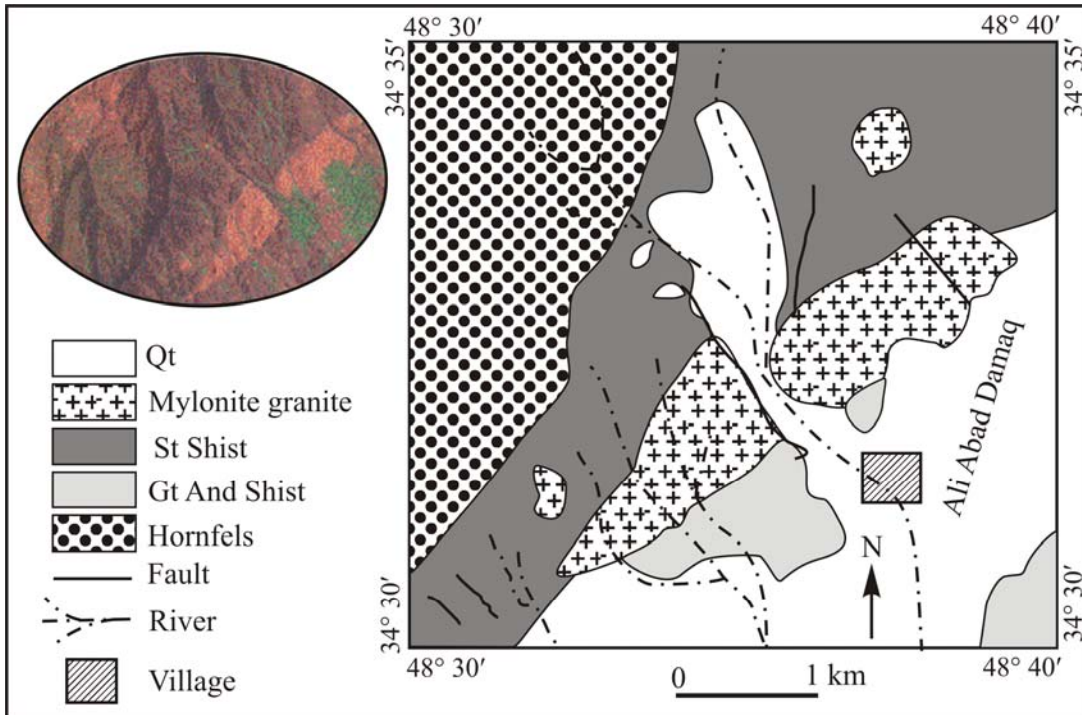
(

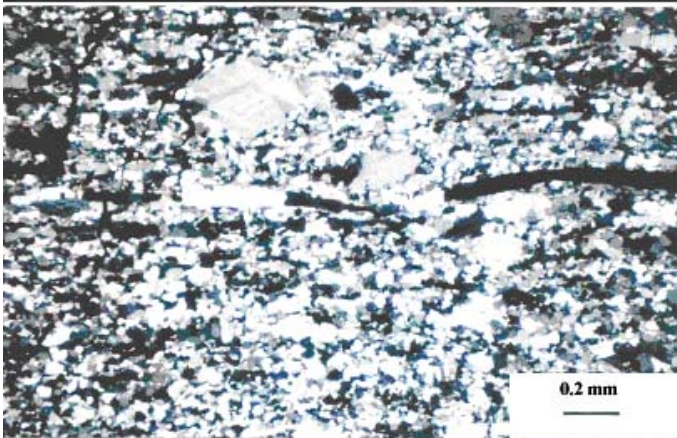
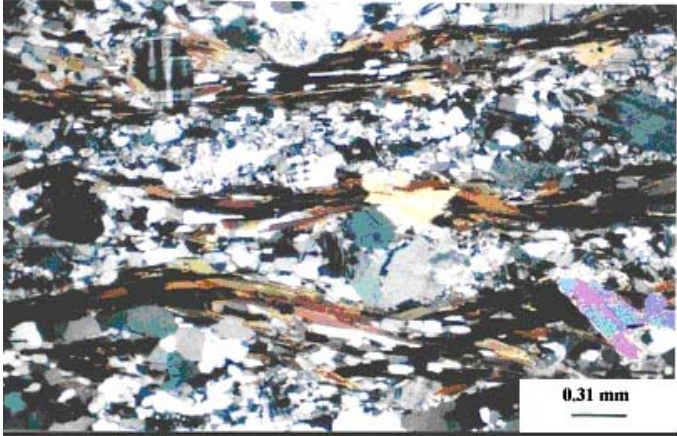
()

) () () () ()

(Shear bands)

() ()





(Ribbon)

()

()

()

)

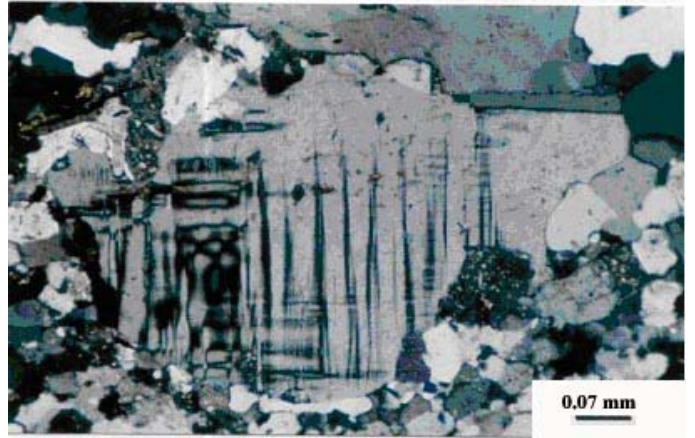
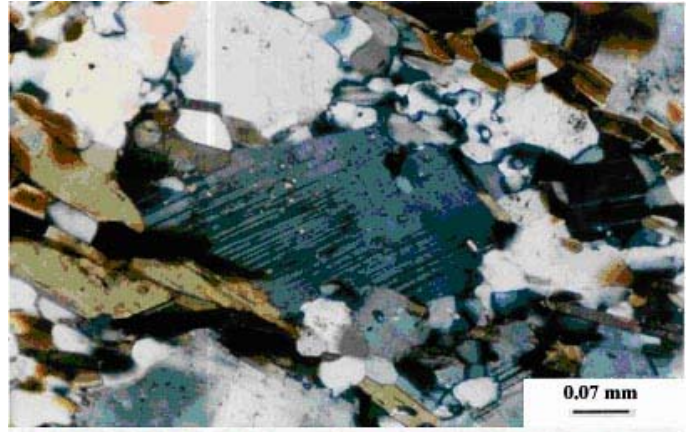
(

()

X,Y,Z

Y X

Z



()

(Transposition)

()

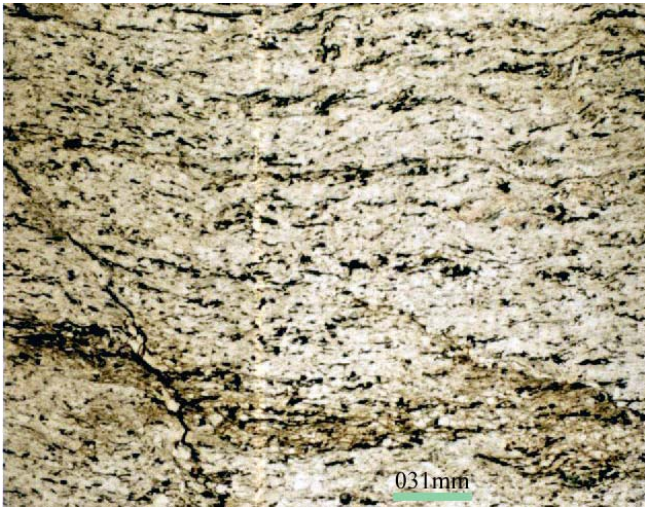
Crenulation)

(cleavage

()



()



(crenulation)

(Pinch & swell)

Pinch)

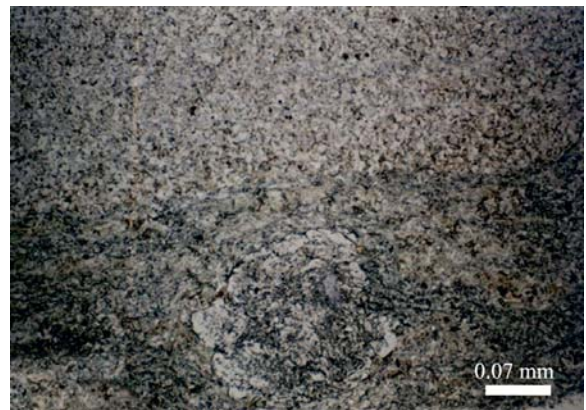
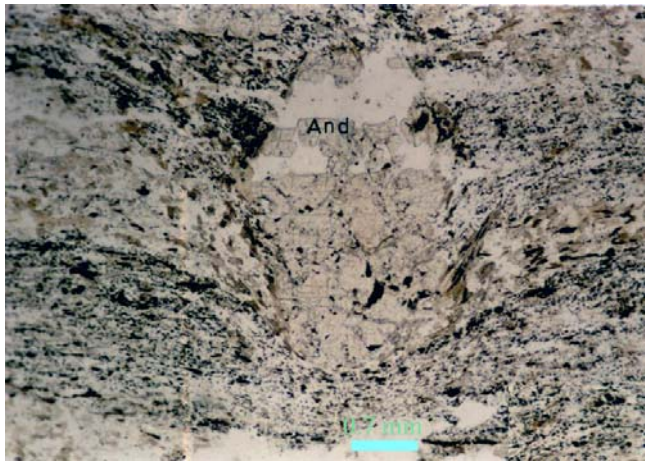
(out

(Pinch and swell)

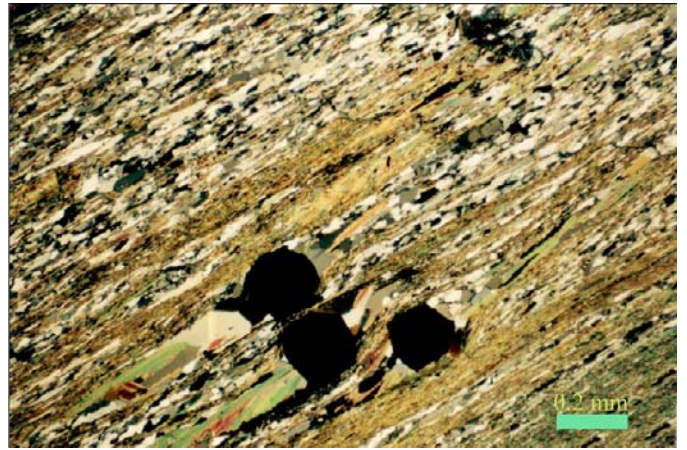
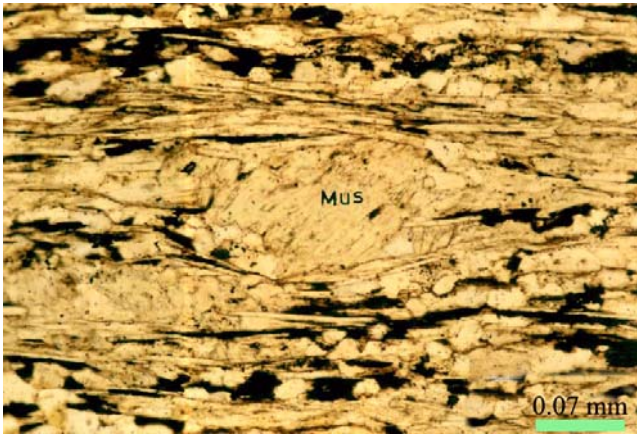
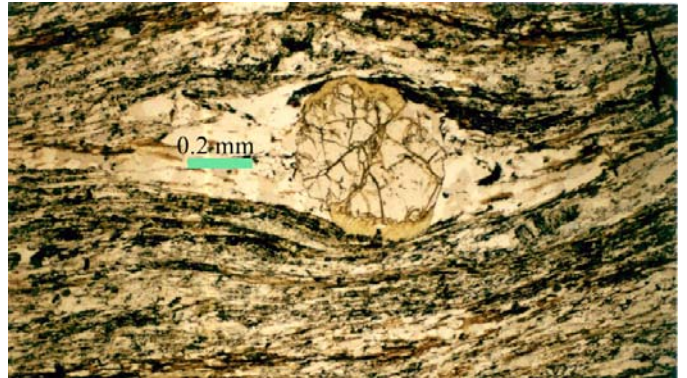
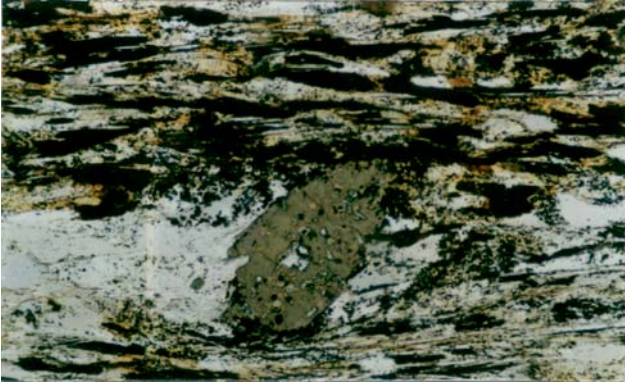
Powell 1979,)

(Borradaile *et al.* 1982, Passchier & Trouw 1996

()



()



()

()

)

(C B A

()

S

Barker)

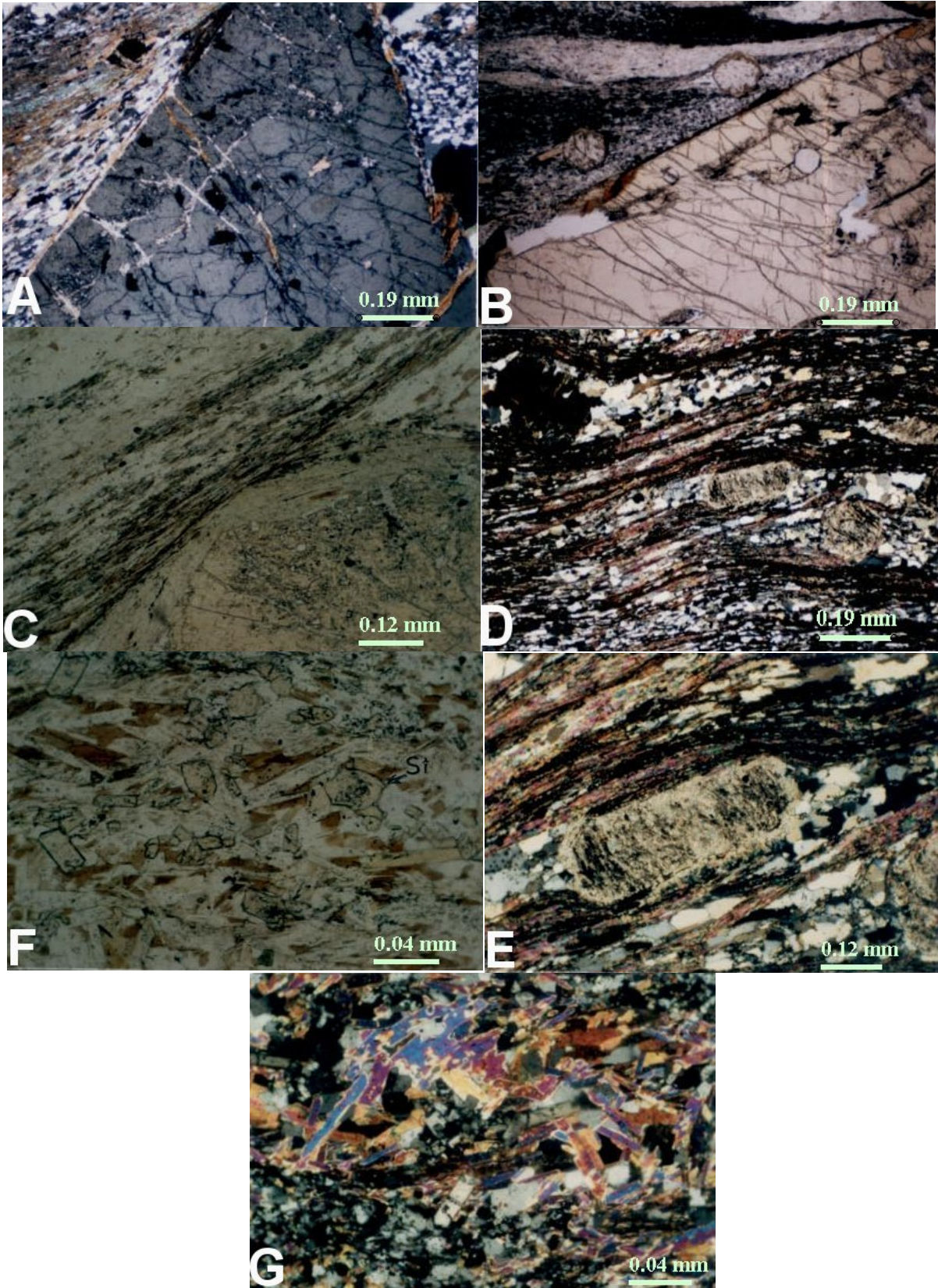
)

(1991

(E D

(G F)

()



A , B, C

:G.

S

D, E.

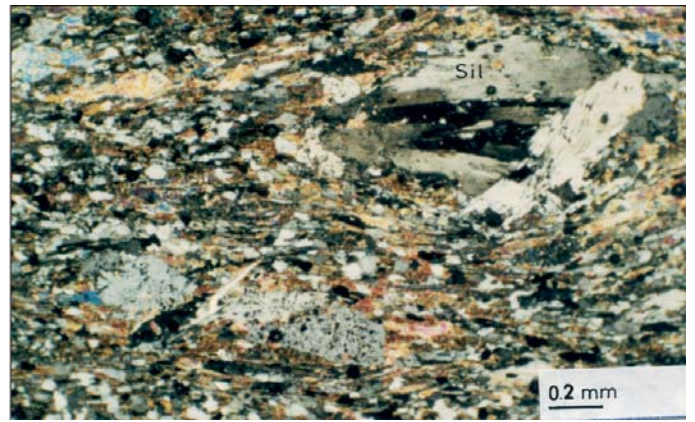
()

()



S/C

()



()



S/C

()

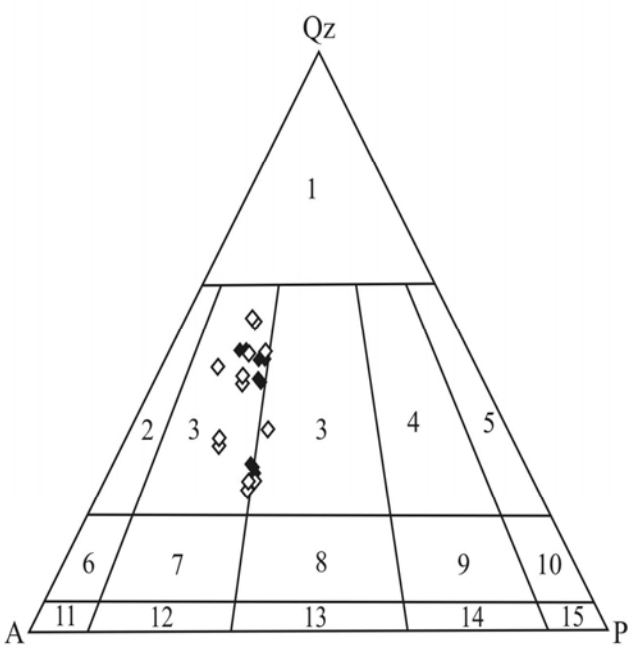
SiO₂

() ()

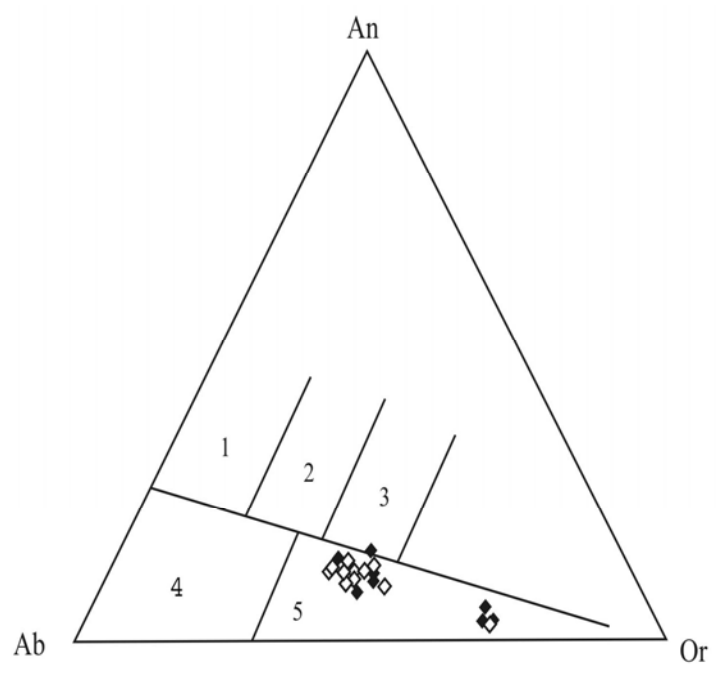
()

() ()

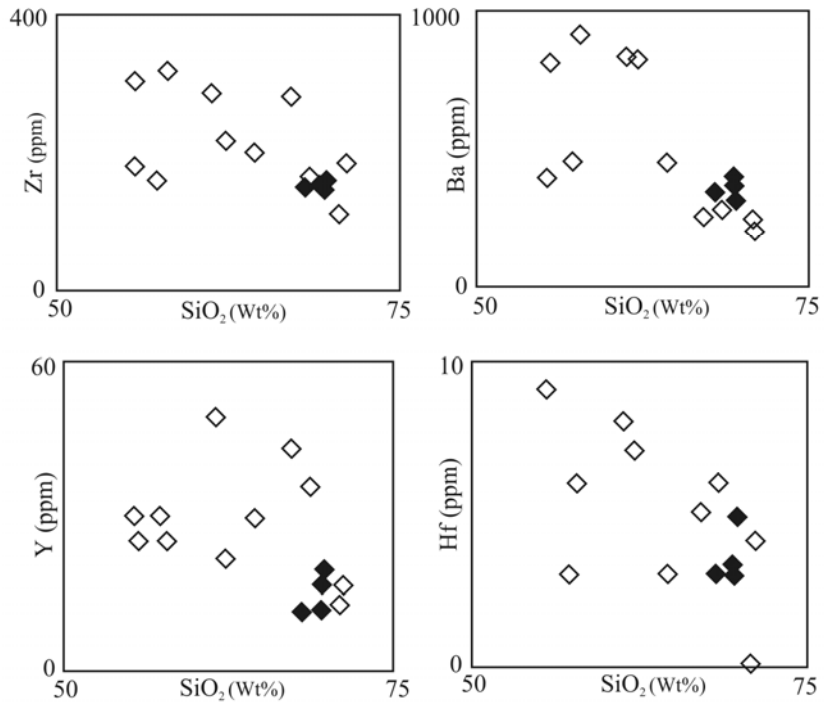
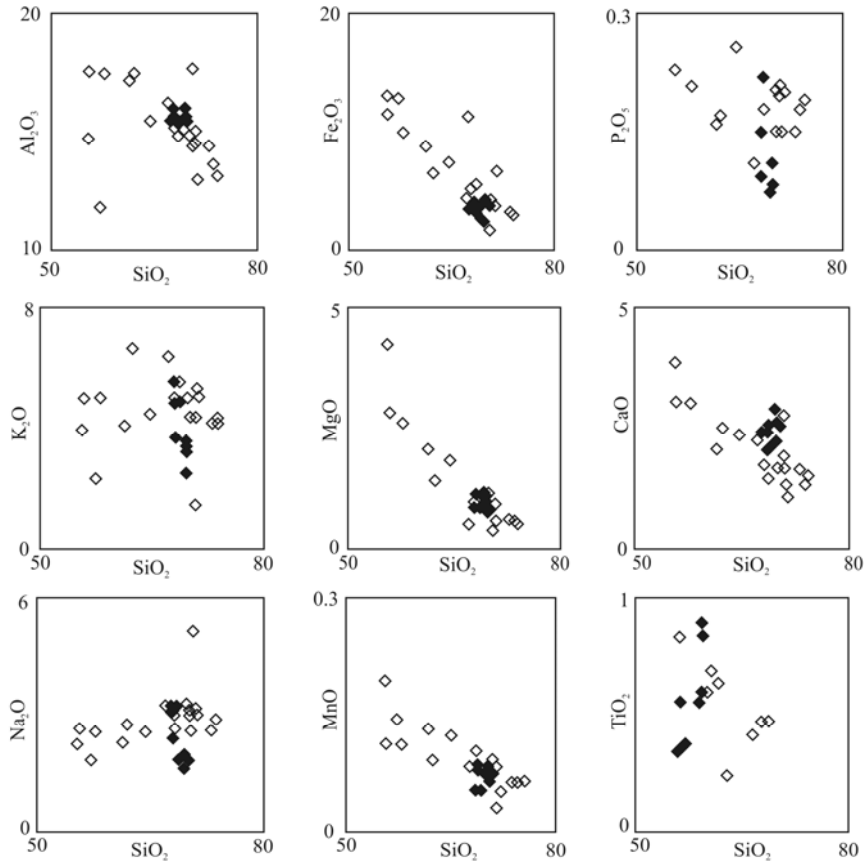
()

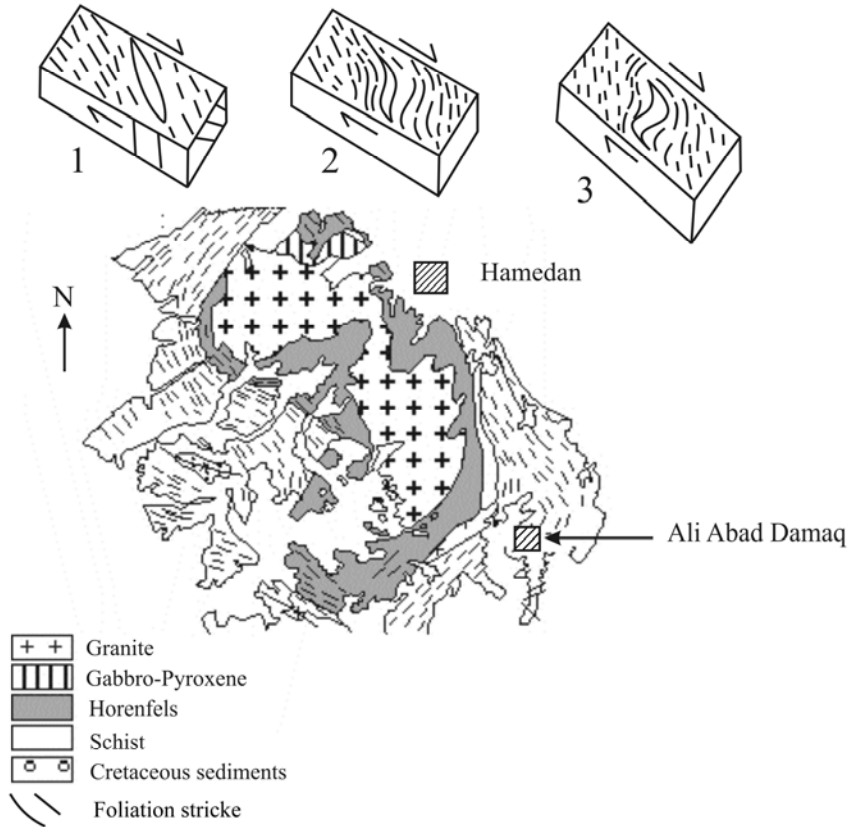


(O'Connor, 1965)



(Streckeizen 1979)





() ()

ALVAND-KARIMI		SiO ₂	Al ₂ O ₃	K ₂ O	Na ₂ O	Fe ₂ O ₃	MgO	MnO	P ₂ O ₅	CaO	TiO ₂
1	gr-1	70.70	15.10	4.40	2.60	3.70	0.90	0.08	0.21	1.60	0.64
2	gr-2	73.20	14.30	4.20	2.60	2.80	0.58	0.06	0.15	1.60	0.40
3	gr-3	70.80	14.30	4.40	3.00	3.80	0.85	0.08	0.21	1.90	0.62
4	gr-4	74.30	13.10	4.20	2.90	2.70	0.50	0.06	0.19	1.50	0.46
5	gr-5	73.80	13.60	4.30	2.90	2.80	0.54	0.06	0.18	1.30	0.46
6	gr-6	70.30	14.90	4.40	3.20	3.70	0.75	0.09	0.36	1.60	0.67
7	gr-7	68.10	15.10	5.00	3.00	4.80	0.95	0.10	0.36	1.70	0.82
8	gr-8	70.00	14.80	5.00	3.30	3.70	0.78	0.07	0.15	1.60	0.58
9	gr-9	71.50	12.90	5.10	3.00	6.40	0.50	0.05	0.20	1.00	0.22

ALVAND-SEPAHI		SiO ₂	Al ₂ O ₃	K ₂ O	Na ₂ O ₃	Fe ₂ O ₃	MgO	MnO	P ₂ O ₅	CaO	Zr	Ba	Y	Hf
1	502.3GJ4	61.42	17.15	4.10	2.31	8.50	2.08	0.13	0.16	2.05	284	831	49	8
2	Gr- gshrst	62.24	17.38	6.65	2.79	6.19	1.40	0.09	0.17	2.46	216	812	21	7
3	Ekh9	64.60	15.36	4.48	2.56	7.11	1.85	0.12	0.26	2.32	2	448	29	3
4	Ekh12	67.21	16.16	6.32	3.25	4.04	0.46	0.08	0.11	2.22	278	252	43	5
5	EMZK- Gj2	55.59	14.58	3.95	2.27	12.61	4.26	0.19	0.61	3.88	180	398	30	9
6	Chg- A9	55.72	17.53	5.04	2.64	11.18	2.83	0.11	0.23	3.06	298	797	25	9
7	EMZK- Gj8	57.34	11.70	2.35	1.86	12.44	5.71	0.14	0.46	6.42	159	444	30	3
8	Chg- A3	57.94	17.44	4.98	2.62	9.62	2.66	0.11	0.21	2.99	315	905	25	6
9	506- Mj4	68.59	14.83	5.52	2.64	5.17	1.08	0.08	0.18	1.44	161	275	35	6
10	Gj- shrst- B1	70.82	17.63	1.48	5.16	1.38	0.34	0.03	0.20	2.76	108	238	12	0
11	Ekh11	71.19	14.39	5.31	3.20	3.42	0.54	0.05	0.15	1.30	185	203	16	4

()

() ()

ALIABAD- BAHARI		SiO ₂	Al ₂ O ₃	K ₂ O	Na ₂ O	Fe ₂ O ₃	Mg ₂ O ₃	MnO	P ₂ O ₅	CaO	TiO ₂
1	GRANITE 1	68.5	15.34	4.85	3.23	2.97	1.1	0.05	0.22	2.07	0.36
2	GRANITE 2	68.03	15.51	5.49	3.05	3.11	0.83	0.05	0.15	2.43	0.33
3	APLITE 1	77.61	13.99	2.6	2.77	0.74	0.05	0.04	0.06	0.77	0.02
4	APLITE 2	76.89	14.11	2.75	2.9	0.91	0.07	0.05	0.07	0.69	0.08

ALIABAD- Mogaddam		SiO ₂	Al ₂ O ₃	K ₂ O	Na ₂ O ₃	Fe ₂ O ₃	MgO	MnO	P ₂ O ₅	CaO	Zr	Ba	Y	Hf
1	M4-S2	68.18	15.83	3.77	2.39	3.59	0.77	0.08	0.09	2.44	146	345	11	3
2	M9-S2	69.8	15.44	3.27	1.86	3.59	0.79	0.08	0.11	2.59	159	300	19	4.9
3	M11-S2	69.66	15.95	3.2	1.59	2.02	1.09	0.06	0.08	2.89	140	325	16	3.2
4	D5-S4	69.45	15.46	3.61	1.85	3.74	0.82	0.08	0.07	2.13	146	370	16	3.1
5	A79_SH	69.61	15.93	2.54	1.96	3.91	0.89	0.07	0.07	2.21	146	390	11	3

(Mohajjel & Fergusson 2000)

Hutton 1988, Guineberteau 1987,)

(Castro 1986, Hutton 1996, Fernandez & Castro 1999

Nevas et al. 1996, Fernandez & Castro 1999, Hutton)

(1988, Hutton 1990, Tobish & Paterson 1990

NW-SE

NE-SW

(antithetic)

(synthetic)

()

()

()

()

(Castro 1986; Brun & Pons 1981)

Mohajjel &)

(

Fergusson 2000

//

Barker A.J. 1991: Introduction to metamorphic texture and micro-structures. Blackies & Son Limited.

Borradaile G.J., Bayly M.B., Powell C.M.A. 1982: Atlas of deformational and metamorphic rock fabrics. Springer Verlag, Stuttgart.

Brun J.P., Pons J. 1981: Strain pattern of pluton emplacement in a crust undergoing non-coaxial deformation, Sierra Morena, Southern Spain. *J. Struc. Geo.* **3**: 219-229.

Castro A. 1986: Structural pattern ascent model in the Central Extremadura batholith, Hercynian belt, Spain. *J. Struc. Geo.* **8**: 633-645.

-
- Fernandez C., Castro A. 1999: Pluton accommodation at high strain rates in the upper continental crust. The example of the Central Extremadura batholith, Spain. *J. Struc. Geo.* **21**: 1143-1149.
- Guineberteau B., Bouchez J.L., Vigneresse J.L. 1987: The Mortagne granite pluton (France) emplaced by pull-apart along a shear zone: structural and gravimetric arguments and regional implication. *Geo. Soc. Amer. Bull.* **99**: 763-770.
- Hutton D.H.W. 1988: Granite emplacement mechanisms and tectonic controls: inference from deformation studies. *Earth Sci.* **79**: 245-255.
- Hutton D.H.W. 1996: The space problem in the emplacement granite. *Episodes* **19(4)**: 114-119.
- Hutton D.H.W., Dempster T.J., Brown P.E., Decker S.D. 1990: A new mechanism of granite emplacement: intrusion in active extensional shear zones. *Nature* **343**: 452-455.
- Mohajjel M., Fergusson C., L. 2000: Dextral transpression in Late Cretaceous continental collision, Sanandaj-Sirjan Zone western Iran. *J. Struc. Geo.* **22**: 1125-1139.
- Neves S.P., Vauchez A., Archanjo C.J. 1996: Shear zone-controlled magma emplacement or magma-assisted nucleation of shear zones? Insights from northeast Brazil. *Tectonophys.* **262**: 349-364.
- O'Connor J.T. 1965: A classification for quartz-rich igneous rock based on feldspar ratios. U.S.GEOI. *Surv. Prof. Paper* **528B**, B79-B84.
- Passchier C.W., Trouw R.A.J. 1996: *Micro-tectonic*. Springer-Verlag.
- Powell C.M.A. 1979: A morphological classification of rock cleavage. *Tectonophys.* **58**: 21-34.
- Silva M.M.V.G., Nevid A.M.R., Whitehouse M.J. 2000: Geochemistry of enclaves and host granites from the Neles area Central Portugal. *Lithos* **50**: 153-170.
- Simpson C., Wintsch R.D. 1989: Evidence for deformation induced K-feldspar replacement by Myrmekite. *Metamorphic. Geol.* **7**: 261-275.
- Stocklin J., Setudehnia A.D. 1991: *Stratigraphic Lexicon of Iran*. Geological Survey of Iran, Report 18.
- Streckeisen A., Le Maitre R.W. 1979: A chemical approximation to the modal QAPF classification of igneous rocks. *Neues Jahrb. Mineral. Abh.*, **136**, 1469-206.
- Tobish O.T., Paterson S.R. 1990: The Yarra granite: an intradeformational pluton associated with ductile thrusting, Lachlan Fold Belt, southeastern Australia. *Geo. Soc. Amer. Bull.* **102**: 693-703.