

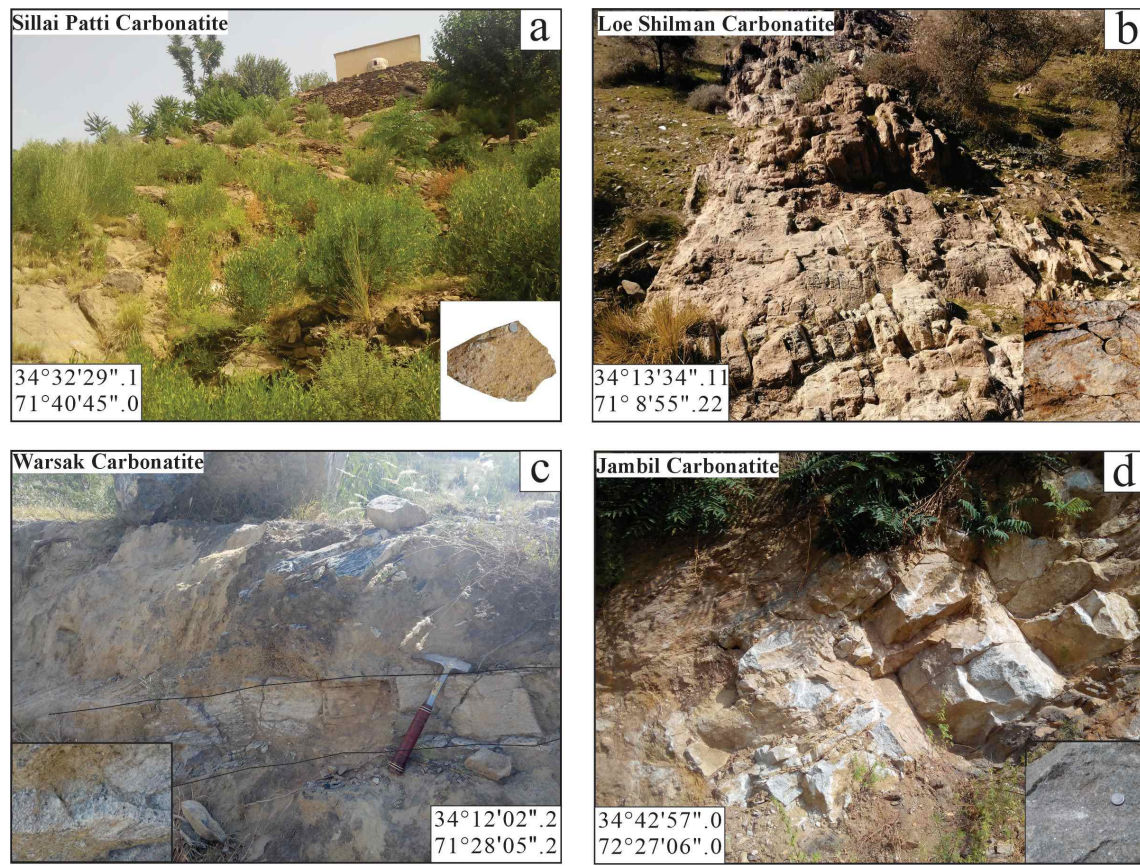


Figure S1: Field photographs of carbonatite bodies from the Peshawar Plain Alkaline Igneous Province (PPAIP): (a) Sillai Patti(SP), (b) Loe Shilman (LS), (c) Warsak (WC), and (d) Jambil (JC).

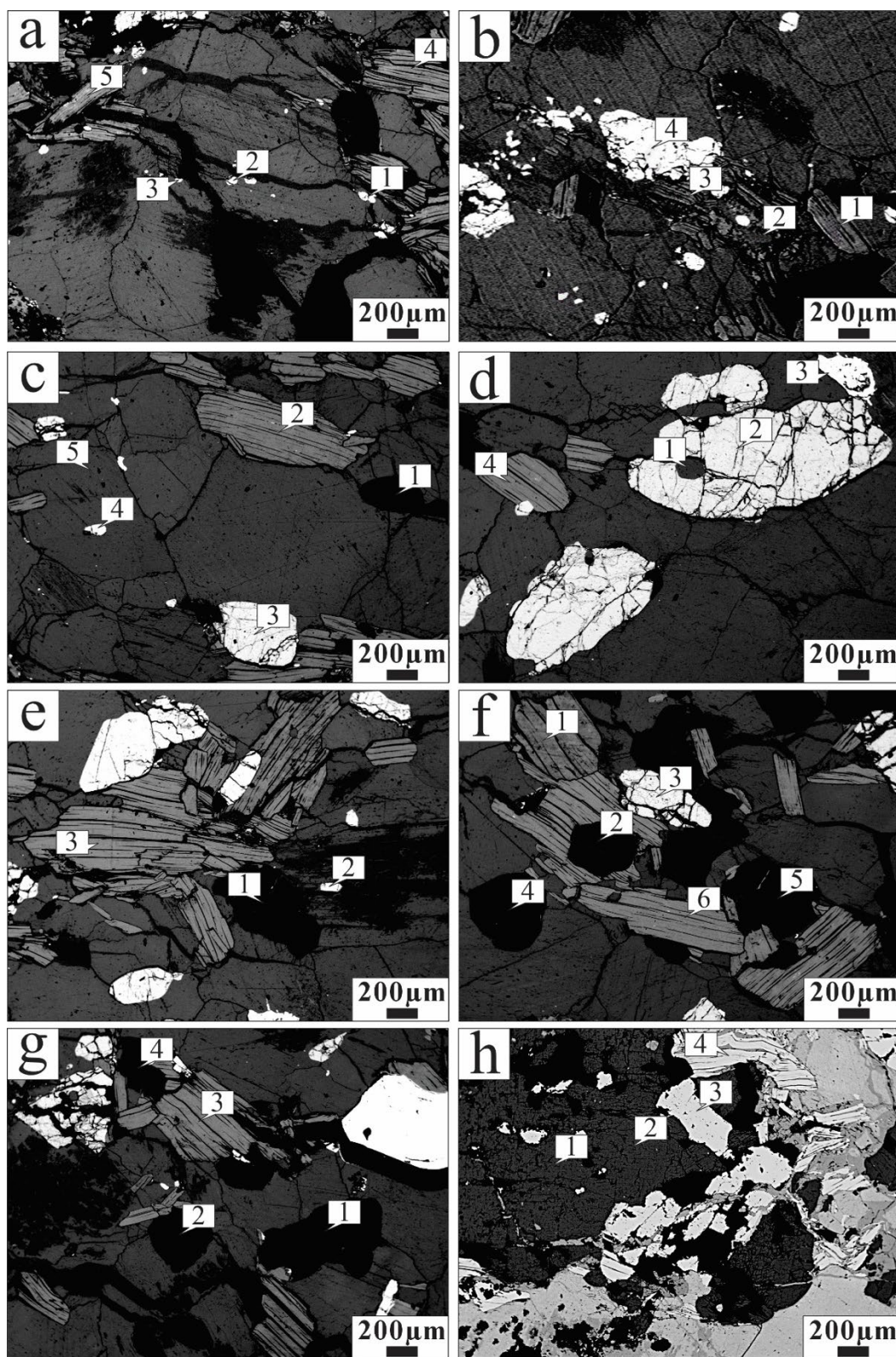


Figure S2. BSE images of SP carbonatite showing textural relationships between major and accessory mineral phases; (box with number denote EPMA analyzed spots and data are shown in the supplementary Table S2 – S6).

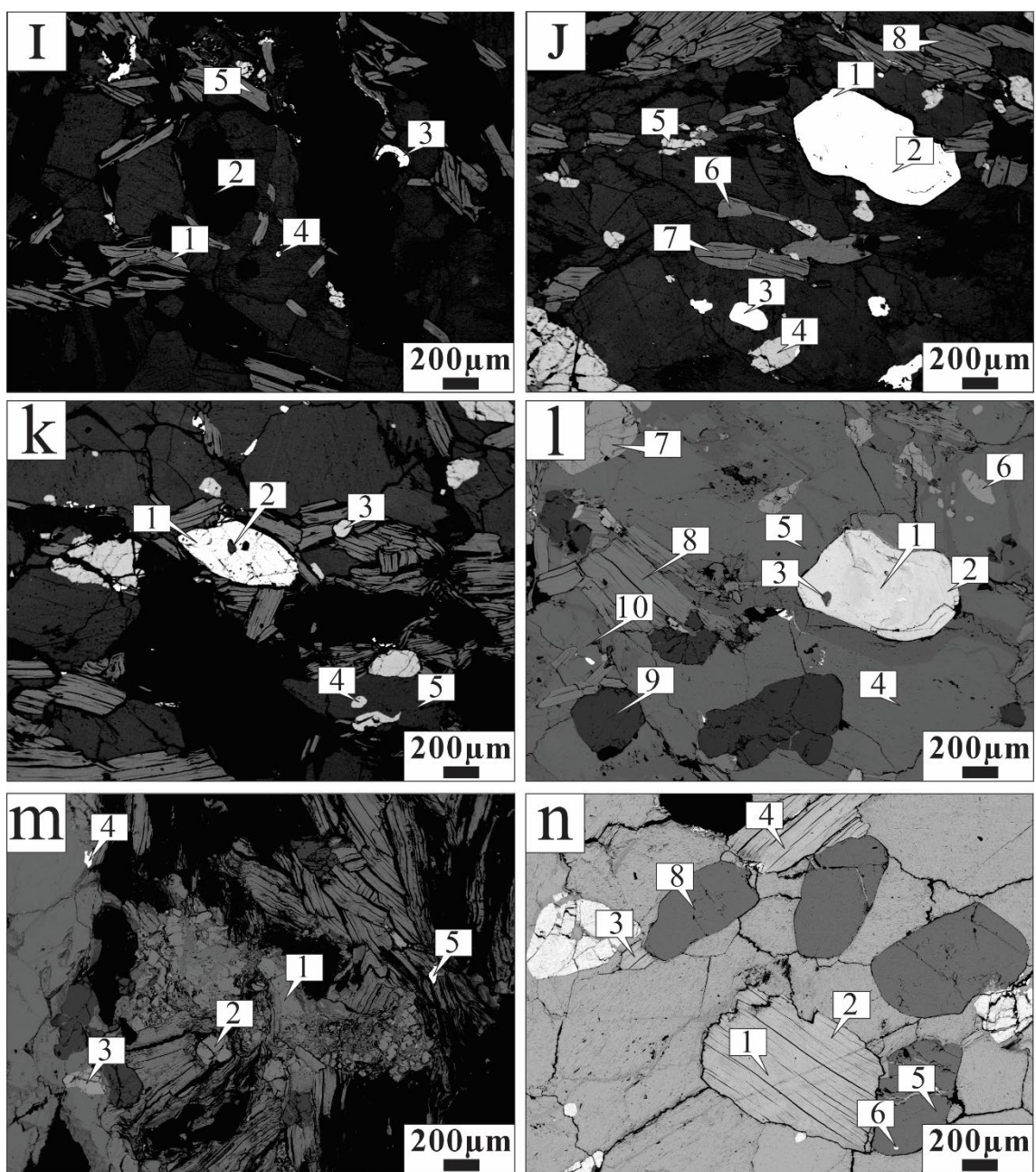


Figure S2. continued

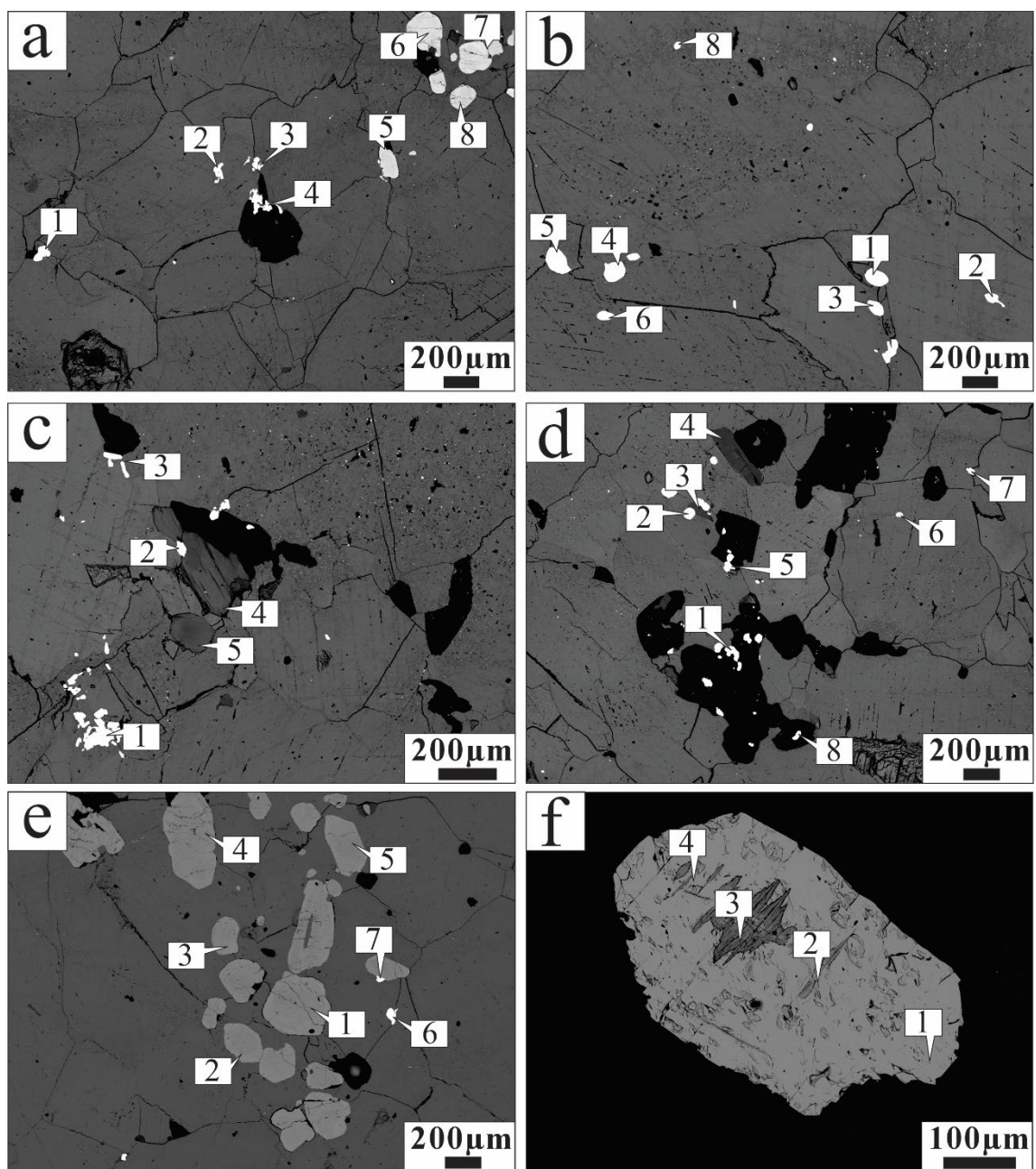


Figure S3. BSE images showing representative mineral assemblages from the LS (Calcitic) carbonatite (box with number denote EPMA analyzed spots and data are shown in the supplementary Table S2 – S6).

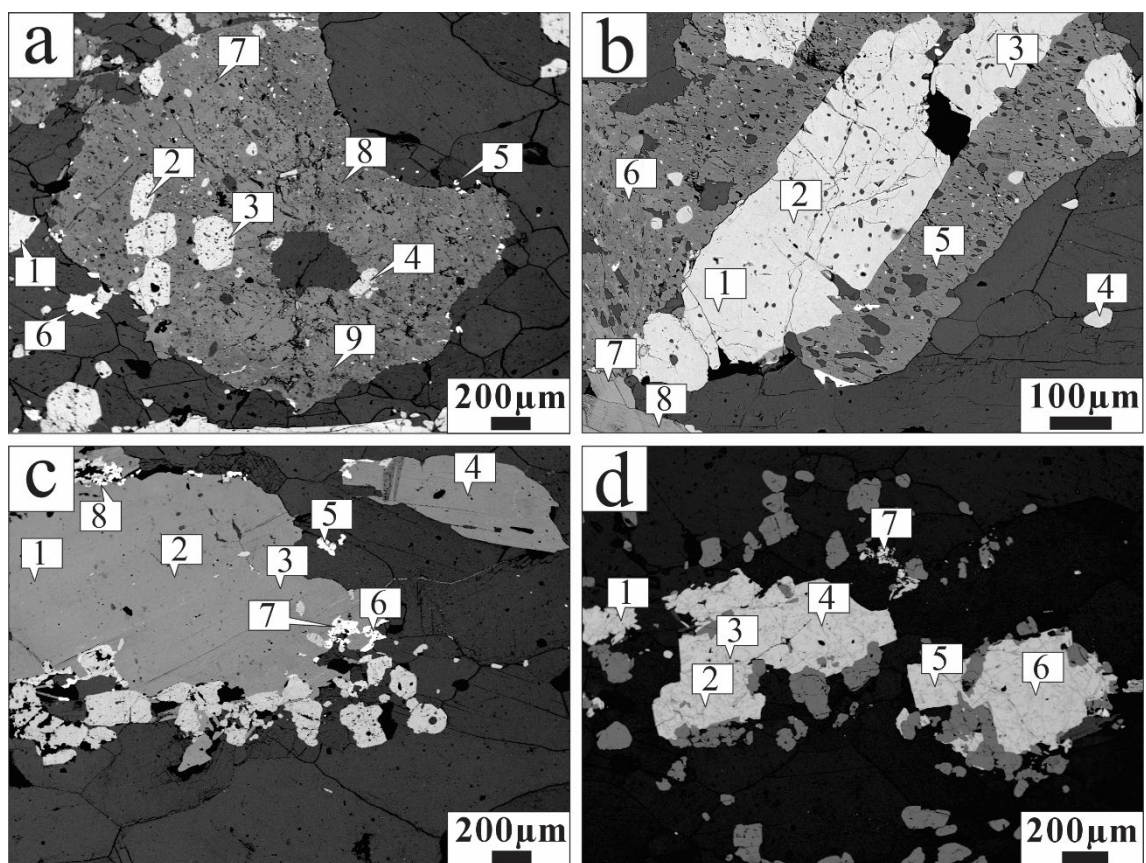


Figure S4. BSE images of the LS biotite-rich carbonatite variety; (box with number denote EPMA analyzed spots and data are shown in the supplementary Table S2 – S6).

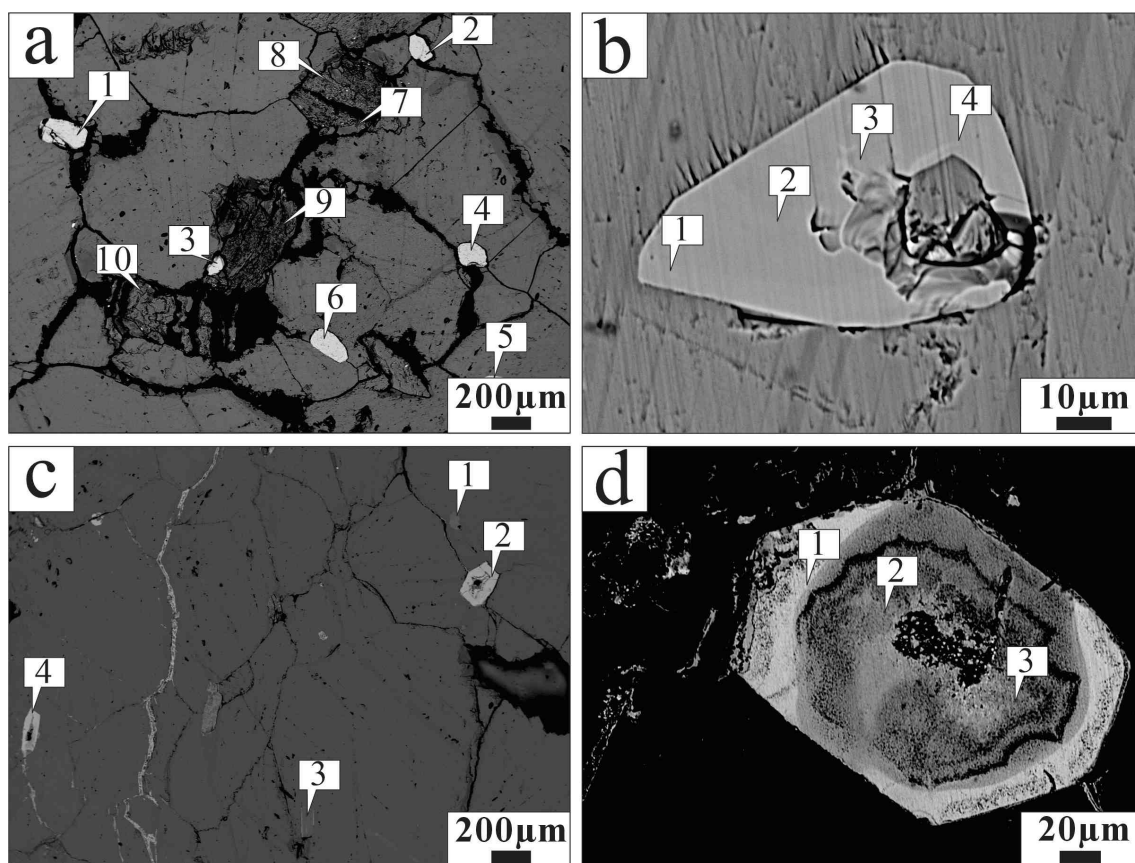


Figure S5. BSE images of WC showing compositional and textural characteristic; (box with number denote EPMA analyzed spots and data are shown in the supplementary Table S2 – S6).

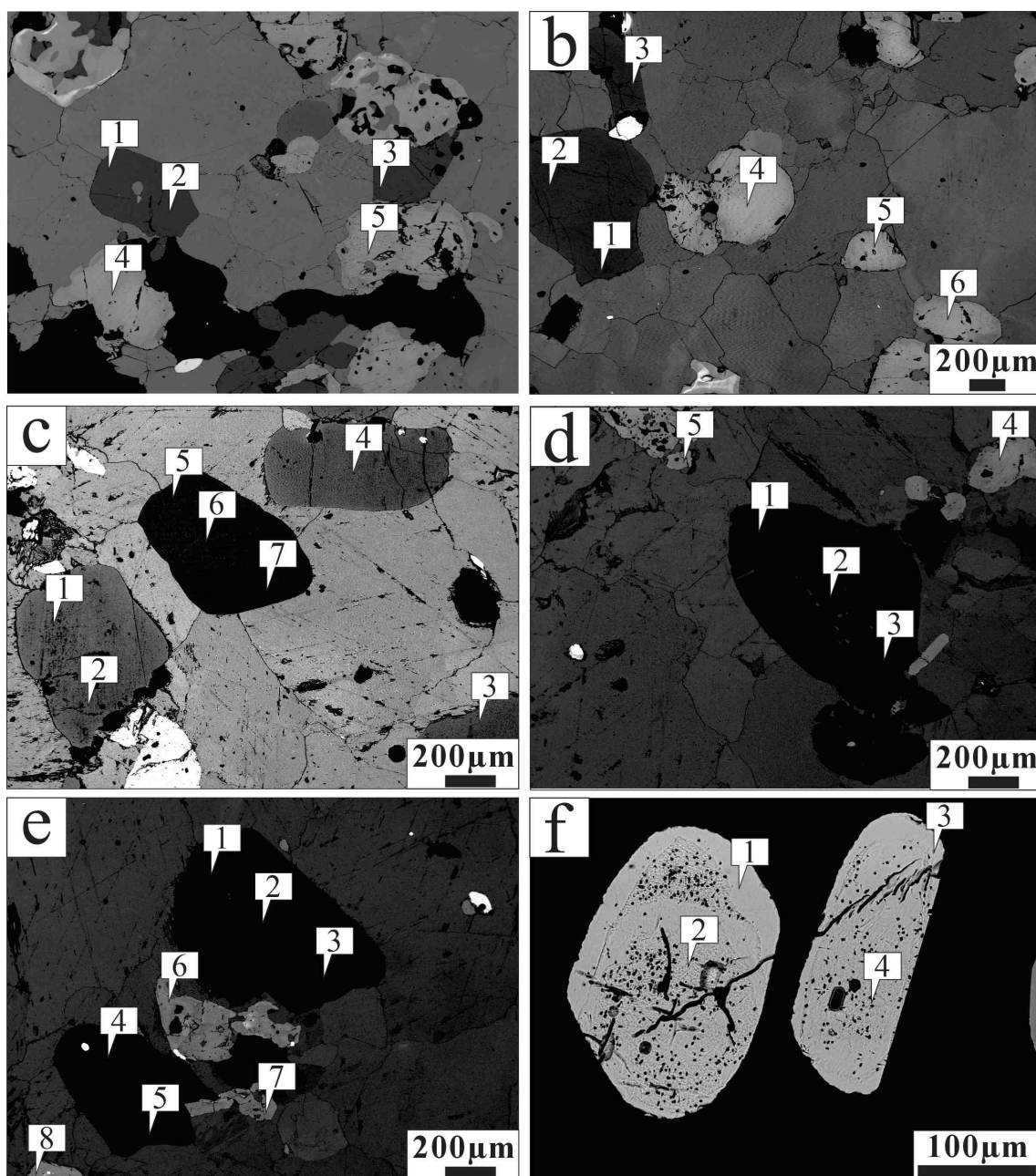


Figure S6. BSE images of JC showing mineral and textural characteristics; (box with number denote EPMA analyzed spots and data are shown in the supplementary Table S2 – S6).