**Supplementary Information**



**Fig. S1.** XRD profiles of a) Ti:Si:Cf = 3:1,1:3,1 , b) Ti:SiC = 3:2 and c) Ti:SiC:Cc = 3:1,5:0,5 of surface and powders heat treated in vacuum atmosphere for 2 hours at 1300 oC temperature (XRD data represented in the manuscript in Table X).



**Fig. S2.** XRD profiles of mixture Ti:SiC:Cc with a molar ratio of 3:1,5:0,5 heat treated with a holding time of 6 hours at 1000 oC, 1100 oC, 1200 oC, 1300 oC and 1400 oC (XRD data represented in the manuscript in Table X).



**Fig. S3.** XRD profiles of mixture Ti:SiC:Cc powders with a molar ratio of 3:1,5:0,5 heat treated at 1300 oC for 2, 4 and 6 hours (XRD data represented in the manuscript in Table X).



**Fig. S4.** XRD profiles of mixture Ti:SiC:Cf powders with a molar ratio of 3:1,5:0,5 heat treated at 1300 oC for 2, 4 and 6 hours (XRD data represented in the manuscript in Table X).