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Severe plastic deformation-nanocoating for processing of biomaterials: A model for small-scale industry,
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Abstract: In this article, a model for processing of materials for implants applications in developing countries of Africa and the rest of the world is presented. The model consists of two processing methods, namely severe plastic deformation and thin film deposition technology. The severe plastic deformation (equal channel angular pressing, ECAP) is utilized in processing the bulk materials into ultra-fine structures whereas the thin film method (sputtering process in this case) was used to modify the surface of the ultra-fined grained material for biocompatible enhancement. The model illustrated can be adopted by African biomedical engineers to develop implants for Africa.
Keywords: Equal Channel Angular Pressing (ECAP); Thin film; Coating; Ultra-fine grained (UFG); Sputtering