**ABSTRACT**

Lithium ion batteries exhibit high energy and power densities, thereby making them a promising power sources for multifarious applications. However, the abundance of lithium (Li) is one of the major critical issues for using Li battery technologies. Therefore, for large-scale applications a sodium (Na) ion battery is one of the apt alternatives for portable electronics instead of expensive Li ion batteries. One of the challenging issues in Na+ ion batteries is the difficulty to understand the chemistry involved in view of the large size of the Na+ ion as compared to the Li+ ion, which makes the alloying/dealloying difficult during cycling. Hence, in this present work, we explore an innovative concept of storing Na+ ions in reduced graphene oxide/antimony (Sb) metal composites. Such a concept of storing Na+ in the rGO/Sb composite is one of the simplest ways to enhance the electrochemical performance of metal-based anodes for sodium ion batteries. Furthermore, it is seen that the nanorGO sheet transforms to nanoribbons upon galvanostatic cycling, as evidenced by TEM.