Researchers have successfully used borate bioactive glass as a carrier for teicoplanin to combat MRSA. The sustained release of the antibiotic from the borate bioactive glass occurred over a much longer period of time than the release of the drug from calcium sulfate ($CaSO_4$, used as a control). The burst release observed at the start of immersion was attributed to the dissolution of the borate bioactive glass. The dissolution process continues to form a thick layer of HA on the surface of the borate glass implant, resulting in the reduced release of the drug. Rapid release of the drug over a shorter period from the surface of $CaSO_4$ was attributed to quick dissolution of the $CaSO_4$ causing most of the drug to leech out during the initial phase of the immersion (Jia et al., 2010).

Borate bioactive glass/chitosan composite was exploited as a carrier for teicoplanin to fight chronic osteomyelitis in rabbits. The reported mechanical properties data suggested that the composite possessed enough structural integrity for repairing bone defects even when some degree of load-bearing ability is required. Furthermore, the composite loaded with 8 wt% teicoplanin exhibited a sustained drug release (83%) over 37 days, confirming its potential in fighting chronic osteomyelitis (Zhang et al., 2010).

Vancomycin-loaded scaffolds of borate bioactive glass were used to treat osteomyelitis and bone defects in rabbits. The study showed that the vancomycin was gradually released from the borate bioactive glass to the surroundings at concentrations that were sufficient enough to prevent the bacterial growth over 18 days. Cumulative release of ~91% was observed in 18 days of the immersion in the test medium. Histopathologic sections showed plenty of newly formed bones intimately attached to the surface of the vancomycin-loaded borate bioactive glass pallets, which grew into the porous network of the scaffolds. In addition, no local or systemic side effects of borate glass or vancomycin were observed (Xie et al., 2009).

Borate bioactive glass scaffolds of composition $Na_2O$-$K_2O$-MgO-CaO-$B_2O_3$-$P_2O_5$ have been used as a vehicle for vancomycin to fight bone related infections in rabbits. Initially, the boron concentration in SBF increased rapidly. 35 wt% of boron from the scaffold was release into SBF after 1 day of immersion of samples in SBF, which increased to 80 wt% after 3 days, whereas a total of 90% boron content was washed out from the scaffolds after 1 week of immersion in SBF. The authors reported that the drug was dissolved and diffused through the porous network of the scaffolds as the SBF penetrated through the samples and corroded the borate glass particles along with the binding phosphate material. Only 2 out of 11 rabbits tested positive for the MRSA infection after 8 weeks of the in vivo implantation of the vancomycin-loaded borate glass compared with 7 out of 11 MRSA positive cases when borate glass was implanted without vancomycin. Results confirmed that the Borate bioactive glass is an excellent carrier for antibiotics to fight bone related infections (Liu et al., 2010).

Gentamicin sulfate-loaded borate bioactive glass/chitosan composites have been used to study their efficacy in combating bone infection through