



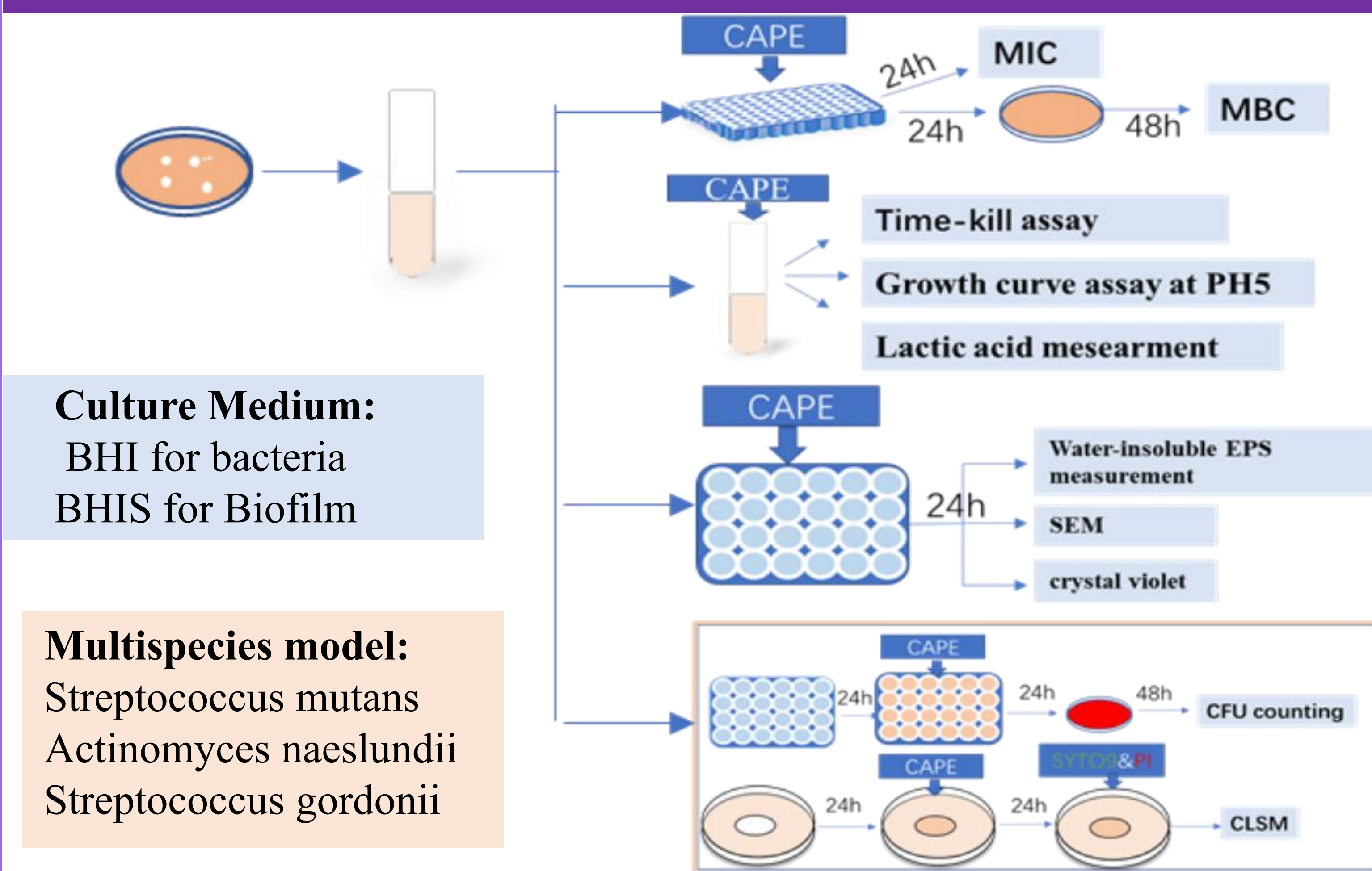
**Introduction**

Dental caries is widely perceived to be caused by oral ecological imbalance when cariogenic bacteria obtain an ecological advantage. Caffeic acid phenethyl ester(CAPE) is a significant component of propolis which is reported the potential to inhibit cariogenic bacteria. However, the role of CAPE on its effects against oral bacteria was still ambiguous.

**Objective**

The purpose of this study was to investigate antibacterial effects of CAPE on oral cariogenic bacteria and multispecies biofilm.

**Methods**



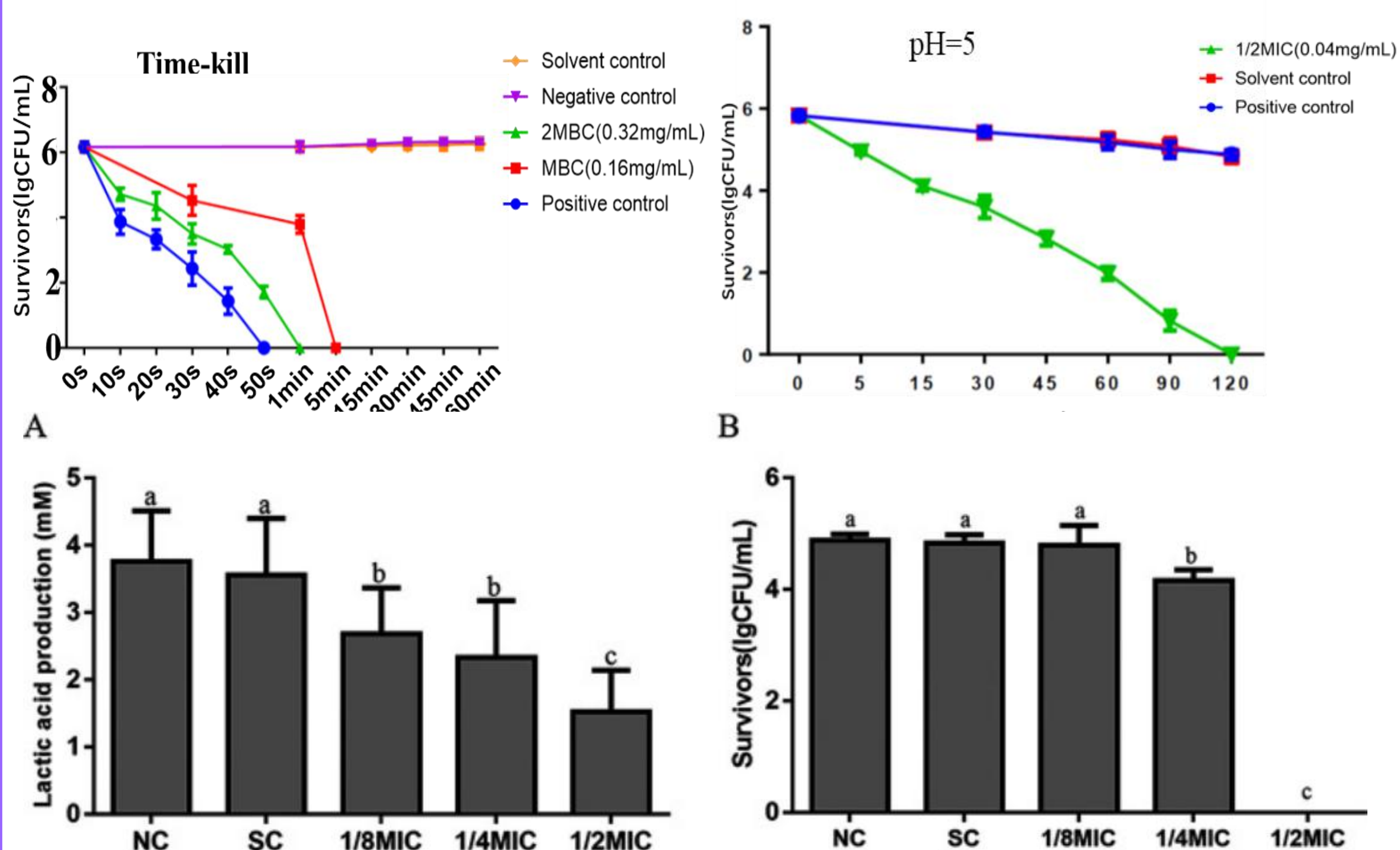
**Result**

**1. Antibacterial effect of CAPE on oral bacteria**

Microbial strains	CAPE MIC (mg/ml)	CAPE MBC (mg/ml)
<i>S. mutans</i> UA159	0.08	0.32
<i>A. naeslundii</i> ATCC 12104	0.08	0.16
<i>S. sobrinus</i> 6715	0.16	0.32
<i>A. viscosus</i> ATCC 15987	0.16	0.32
<i>S. gordonii</i> ATCC10558	0.08	0.16

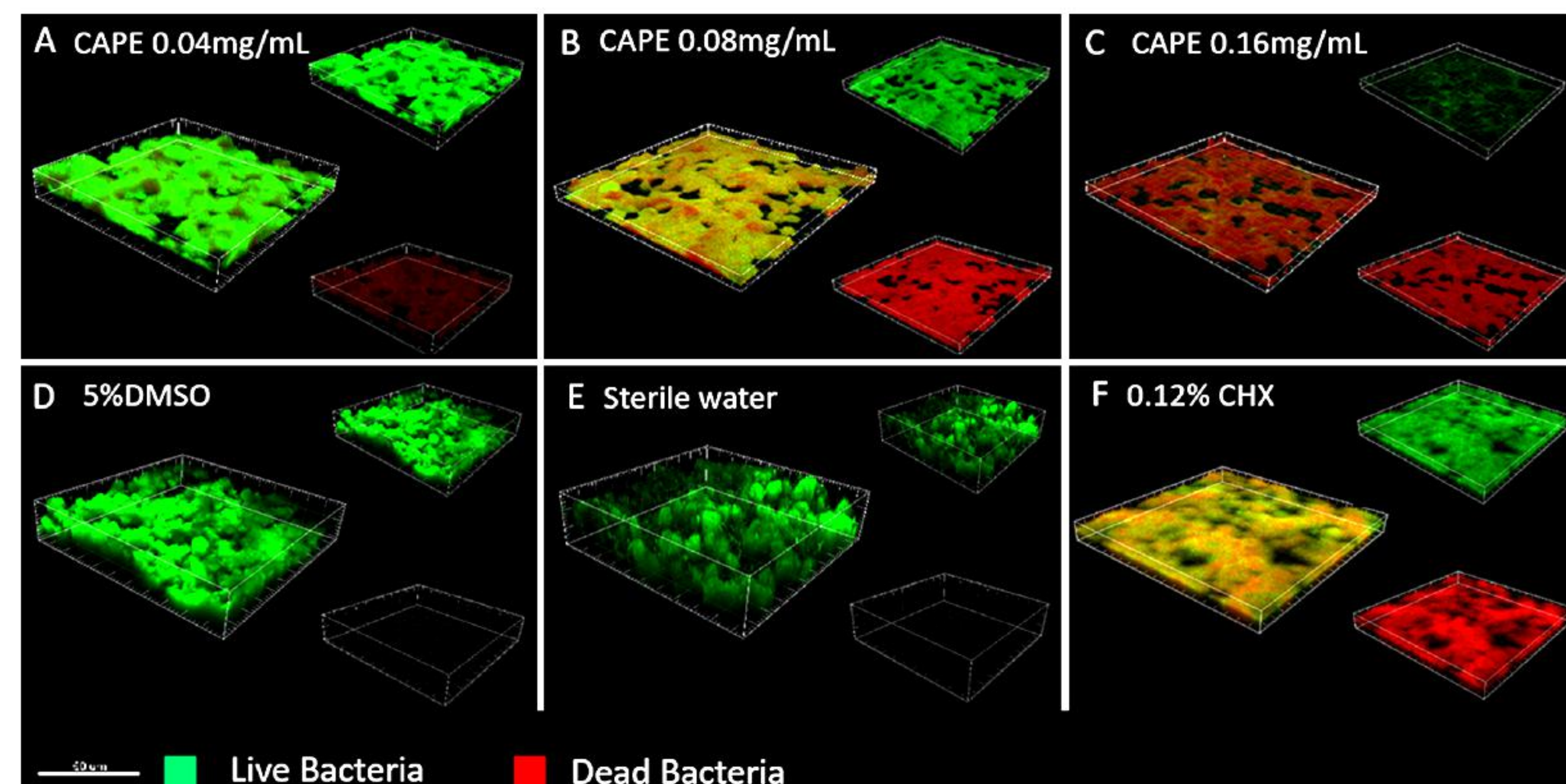
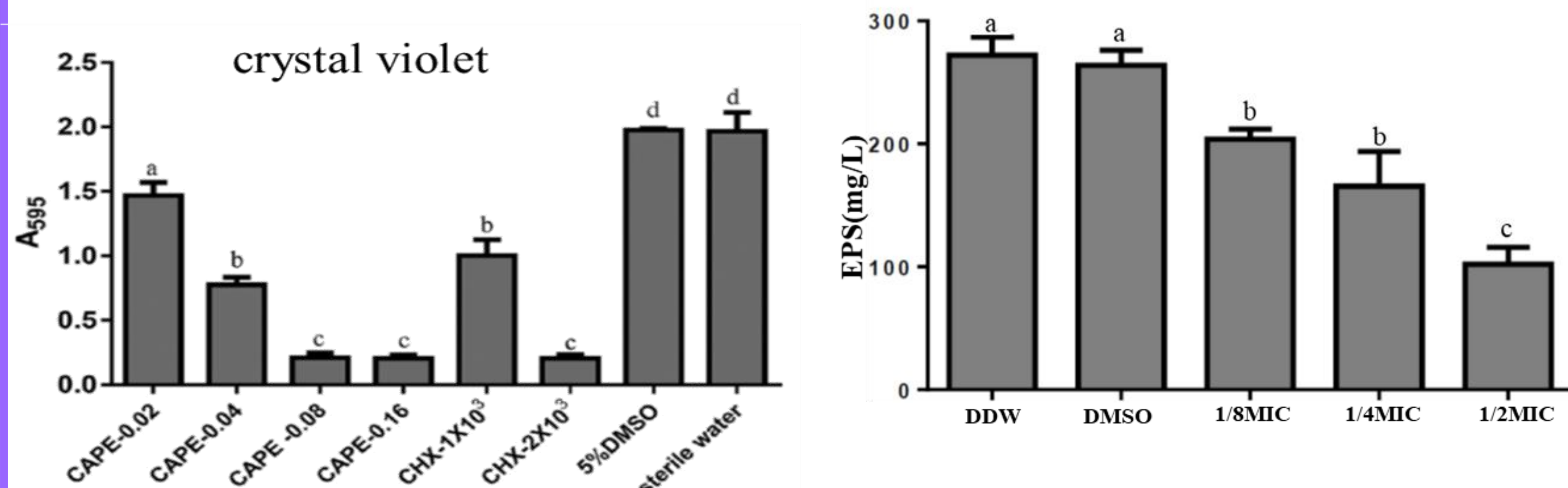
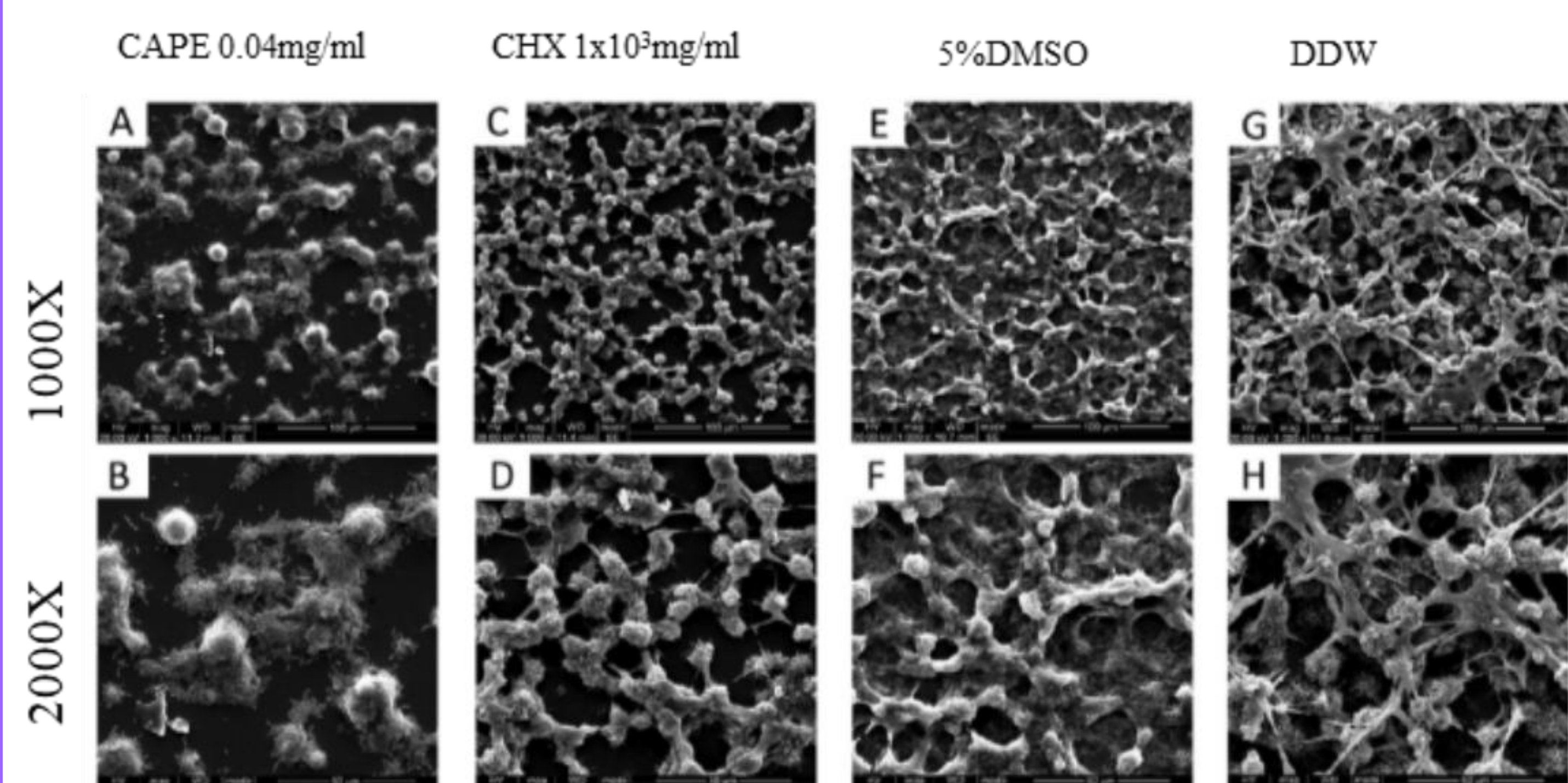
CAPE showed antibacterial effect against several oral bacteria.

**2. Effect of CAPE on the cariogenic properties of *S. mutans***



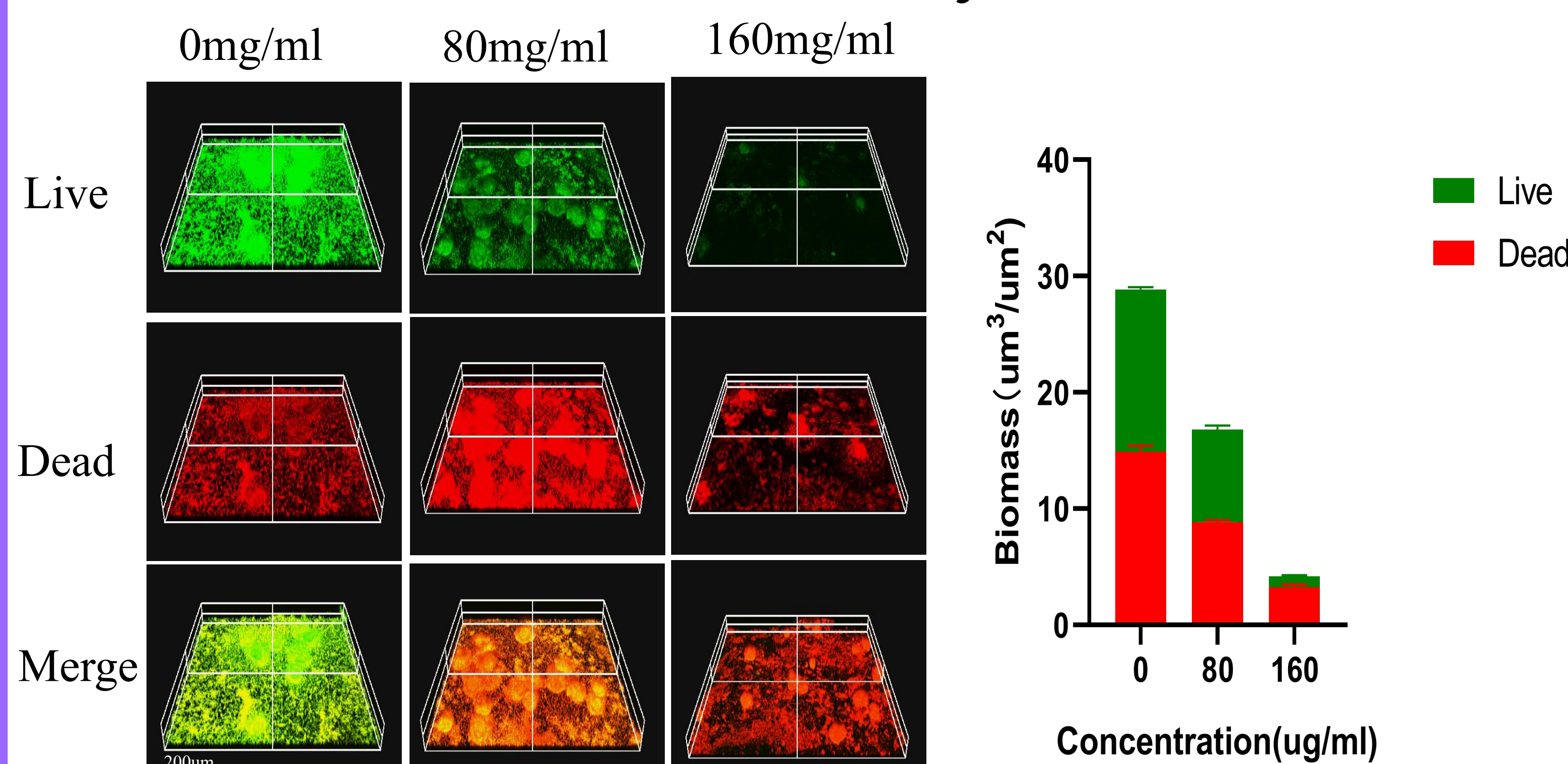
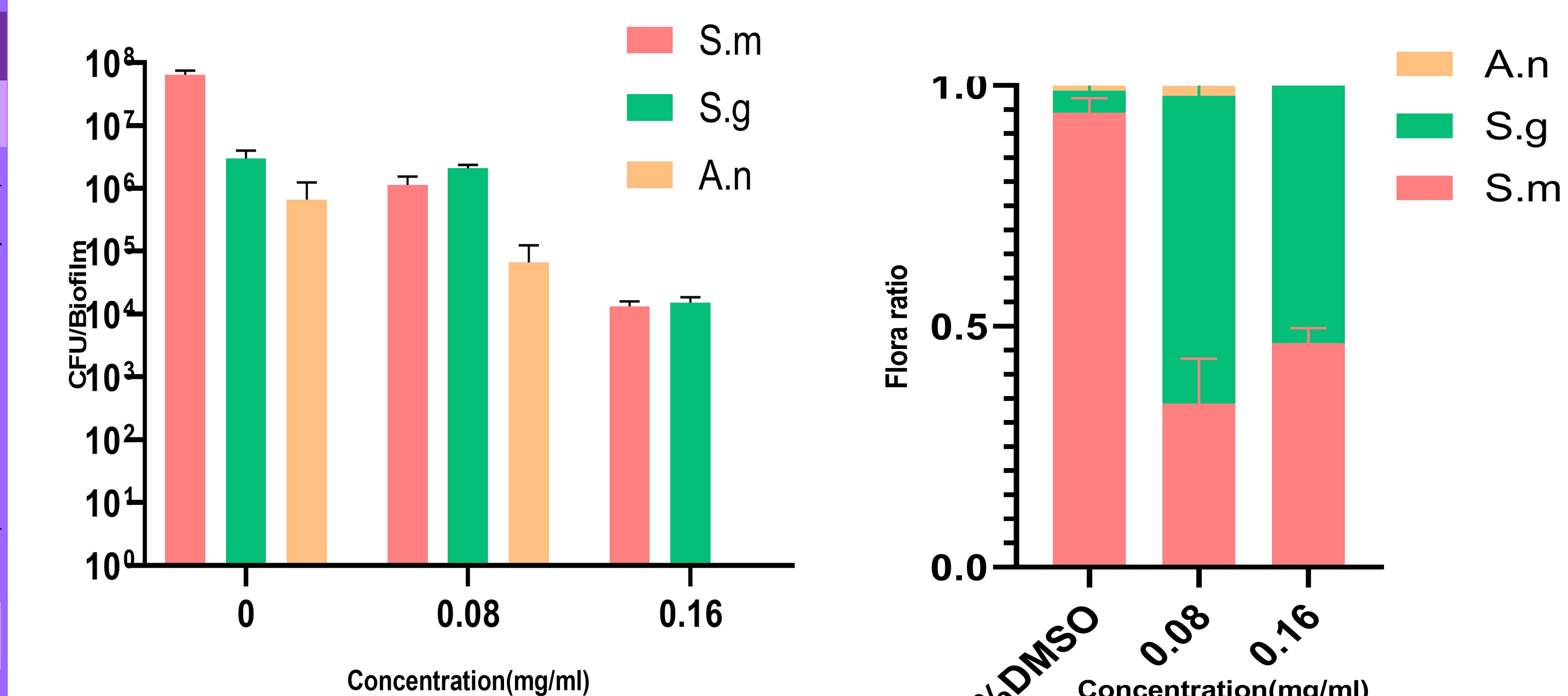
CAPE exhibited a strong short-term bactericidal activity against *S. mutans* and inhibited acid production and acid tolerance of *S. mutans*.

**3. Antibacterial effect of CAPE on *S. mutans* biofilm**



CAPE inhibited *S. mutans* biofilm formation and EPS production. Furthermore, the biofilms treated with CAPE became looser with less live bacteria than those in the control.

**4. Effect of CAPE on the multispecies biofilm**



CAPE effectively reduced live bacteria in the biofilm and lessened the proportion of *S. mutans* and *A. naeslundii*.

**Conclusion**

In summary, CAPE exhibited a strong inhibitory activity against *S. mutans* and its biofilm, reducing their cariogenic ability. What's more, CAPE eradicated and modulated mature biofilm by reducing flora ratio of *S. mutans* and *A. naeslundii* and increasing flora ratio of *S. gordonii*. Antibacterial effects of CAPE against the oral cariogenic bacteria and biofilm endowed its application potential in preventing and treating dental caries.

**Acknowledgement**

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**Reference**

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