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Sterilization of microbes is classified into heat- and cold-sterilizations, and there are physical- and chemical-sterilizations in the cold sterilization (Fig. 1). Their methods have been constructed to sterilize harmful microbes effectively on clothing, food and housing, pharmaceuticals and environmental sanitation. Focusing on chemical sterilization, many scientists have developed new biocides and studying their formulations and applications for a long time. However, the infectious diseases caused by harmful microbes and the deterioration of quality of products by microbes have occurred, even if chemical sterilization is carried out continuously, and moreover, excessive use of biocide causes emergence of resistant microbes. Therefore, I am developing new biocides and their application to construct effective sterilization method.

I have reported “Hygenia™” as a biocide and its antimicrobial material, and a sterilization method by combination of Hygenia™ and UV light (Fig. 2). The present subject is the development of new biocides which transform into active molecule by being treated physically, such as light irradiation, and of sterilization methods applied with their biocides.

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