DESCRIPTION

Title of Invention:

NANO-PLASTIC REMOVAL METHOD AND NANO-PLASTIC ADSORBENT

Technical Field

[0001] The present invention relates to a method for removing nanoplastics and an adsorbent for adsorbing nanoplastics.

Background Art

[0002] In recent years, influence of microplastics and nanoplastics to living organisms has become a problem. Small plastic particles have been detected from planktons and bodies of marine organisms. It is suspected that microplastics are concentratedly accumulated in fish in the way of food chain, and people who take seafood collect small plastic particles without noticing. Additionally, it is suspected that minute nanoplastics floating in the air are taken into the body concurrently with breathing, or nanoplastics existing in beverages are taken into the body. Actually, in studies in recent years, some nanoplastics are detected in human blood, which arouses concerns over damages to the health.

[0003] Although there is no established definition of microplastics and nanoplastics, microplastics and nanoplastics are classified by size, generally speaking. While microplastics are deemed to have sizes in a range of 100 nm to 5 mm, nanoplastics are deemed to have sizes of 100 nm or smaller. Microplastics can be removed by a normal filter or the like, but nanoplastics cannot be removed at all or can be removed at a poor efficiency by a normal net or filter. In view thereof, Patent Literature 1 discloses a method for removing nanoplastics by use of activated carbon as adsorbent. Further, Non Patent Literature 1 discloses a result of studies on removal of nanoplastics by use of activated carbon. Non Patent Literature 2 discloses a result of studies on removal of nanoplastics by sand filtration or activated carbon filtration.

[0004] However, Patent Literature 1 fails to specifically disclose a way of bringing an adsorbent and nanoplastics into contact with one another. The method disclosed in Patent Literature 1 requires an extremely long time to adsorb nanoplastics. Thus, it is difficult to say that Patent Literature 1 discloses a practical adsorption method. Additionally, Non Patent Literatures 1 and 2 do not disclose a technology of removing minute particles or nanoplastics whose average particle diameter D50 is 100 nm or smaller, and which pass through a cell wall or an intercellular gap in a living organism, and do not confirm any effect of the removal of nanoplastics whose average particle diameter D50 is 100 nm or smaller.