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Artificial Groundwater Recharge Process Study By Natural Isotopes Tracers

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The interaction between groundwater and surface water was important to know groundwater recharge process of the artificial recharge system. To understand recharge process, natural isotopes such as ^{222}Rn and $^{87}\text{Sr}/^{86}\text{Sr}$ ratio variation were used. And also these tracers used to identify groundwater mixing phenomena for the artificial groundwater recharge of the water curtain greenhouse system. The groundwater was sampled from three monitoring well for every month from December 2013 to March 2016. And elements, ^{222}Rn and $^{87}\text{Sr}/^{86}\text{Sr}$ ratio variation were analyzed. The concentrations of Fe, Mn, Si, F were varied during the water curtain cultivation period due to the surface water intrusion. And the concentration of ^{222}Rn was decreased when water curtain cultivation and artificial groundwater recharge were started and slowly increased after water curtain cultivation ended. The concentration of ^{222}Rn was changed from 400 pCi/L to 2500 pCi/L according to the well. The $^{87}\text{Sr}/^{86}\text{Sr}$ ratio variation of the three monitoring well showed different appearance. Among them OB-12 and OB-14 showed similar variation during artificial groundwater recharge period but OB-13 showed different ratio variation. This means groundwater-surface water mixing was occurred by different groundwater route.

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