

ABSTRACT

THE ANALYSIS OF TRACE ELEMENTS IN GEOTHERMAL WATER RESOURCES via ICP-OES AND UV-Vis TECHNIQS AROUND AYDIN AND AYDIN'S CENTER

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Earth crust has abundant and various energy resources. Geothermal energy is used to mean that energy comes from the earth. Geothermal energy is a type of energy resource that is nonconsumable, renewable and it is not caused environmental pollution and is researched more widespread area of utilization. Geothermal energy is used for production of electricity, heating the dwellings and area of cultivation. At the same time, geothermal energy is contributed to positive effects on healthy life, recent researchs are concentrated on this direction. Our country is ranked among 5 countries all over the world using geothermal heating and thermal spring's applications, and is located on Alpine-himalayan tectonic zone and is also ranked among 7 countries all over the world in terms of resources abundance. In Turkey, it is determined that over 40 °C which contains geothermal fluid 140 unit-geothermal zones and in this zones, is determined around 1300 thermal resources.

Current resources in Aydın are seen as important resources for geothermal energy application. As a result of geologic structure and morphologic situation and also Turkey has abundance mineral waters and thermal springs, there are plenty of good reputation waters, Aydın is a city which has abundance in terms of geothermal energy potential in Turkey. There are many thermal springs around and inside the provincial borders.

In this study, it is emphasized Aydın city's geothermal energy potential and the thermal springs waters are analysed which is stated in this region, temperature values are observed higher than nearby cities. Because of this reason, it can be said that Aydın's thermal springs are suitable for both thermal spring tourism and for using heating purpose. In this study, various trace elements in hot water (Cd, Cr, Ni, Pb, Ba, Cu, Zn, Al etc.), some anions (F, Cl, Br, I, NO₃, NO₂, SO₄, PO₄) and cations (Na, K, NH₄, Mg, Ca, Mn, Fe) are analysed. Heavy metal levels which was analysed in thermal spring waters is under the limits that is not threatened public healthy.

Key Words: Thermal spring, Aydın, Water analysis, Mineral substance analysis, ICP-OES