

## **n-alkane Characterization of Marine, Lacustrine and Terrestrial Environments: a Statistical Application on the Selected Fields from Turkey**

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Dereköy-Çağlayan formation (for marine), Beypazarı-Seyitömer bituminous shales (for lacustrine), Muğla-Seyitömer coals (for terrestrial) were selected to represent the n-alkane characteristics of the organic matter precipitated in marine, lacustrine and terrestrial depositional environments.

According to the results of pyrolysis analysis, type I-II kerogen for Dereköy Formation, predominantly type II and less type III kerogen for Çağlayan Formation, type I kerogen for Beypazarı and Seyitömer bituminous shale, and predominantly type III and less type II kerogen for Muğla and Seyitömer coals were determined. Predominantly medium molecular weight n-alkanes for the Dereköy and Çağlayan formations, predominantly medium-molecular weight and high molecular weight n-alkanes for Beypazarı and Seyitömer bituminous shales, predominantly n-alkanes with very high carbon number for Muğla and Seyitömer coals were recorded.

In the cluster analysis applied to the n-alkane components (n-C<sub>15</sub> +), three distinct groups were formed, including C<sub>15</sub>-C<sub>21</sub>, C<sub>22</sub>-C<sub>29</sub> and C<sub>30</sub>-C<sub>35</sub> components for marine source rocks. Two n-alkane groups for lacustrine source rocks have been identified. In the group I, even number n-alkanes in the range of C<sub>24</sub>-C<sub>32</sub> and n-alkanes in the range of C<sub>33</sub>-C<sub>35</sub>, and in the group II, n-alkanes of medium molecular weight (C<sub>16</sub>-C<sub>22</sub>) and n-alkanes of high molecular weight-odd numbered carbon (n-C<sub>23</sub>-n-C<sub>31</sub>) are present together. Three n-alkane groups were formed for Muğla and Seyitömer coals. In group I, n-alkanes in the C<sub>15</sub>-C<sub>22</sub> range are closely related, and C<sub>32</sub> and C<sub>35</sub> n-alkanes are also added to these components. In the II and III groups contain the even numbered n-alkanes in the C<sub>24</sub>-C<sub>34</sub> range and the odd numbered alkanes in the C<sub>23</sub>-C<sub>33</sub> range, respectively. In the discriminant analysis of n-alkane distributions of the lacustrine and marine source rocks and coals, the samples from different type environments are clearly separated and the most effective n-alkane components in discriminant functions were identified as C<sub>21</sub>, C<sub>24</sub>, C<sub>19</sub>, C<sub>26</sub>, C<sub>28</sub>, C<sub>25</sub>, C<sub>29</sub>, C<sub>18</sub>, respectively.

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