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VALUE ENHANCEMENT OF RED SPINEL

A PROJECT REPORT PRESENTED BY

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**to the Board of Study in Earth Sciences of the
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MASTER OF SCIENCE IN GEMMOLOGY

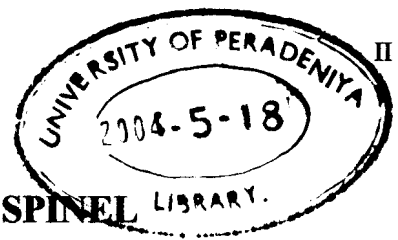
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ABSTRACT

Most often red spinel are found with low clarity and pale colours, locally and many other parts of the world. Therefore it is important to find a method to enhance the quality and value of these spinels. As there is a very good demand for the good quality red spinels in the international market, it is worthwhile for attempting the value addition of these low quality red spinels as they are available in large quantities in Sri Lanka.

Large number of red spinels from Sri Lanka were selected by means of visual observations for this study and the heat treatment was done to enhance the quality and value using the "Lakmini furnace," a gas fired furnace, and an electrical furnace. Routine gemological examinations were carried out before and after the treatment to identify the changes of the treated samples. Chemical analysis was done by Electron Probe Micro Analysis (EPMA) and the enhancement of colour was studied using UV visible spectroscopy.

The value of the red spinel with geuda can be enhanced by means of heat treatment at a minimum temperature of about 1350 °C. The use of this low cost method of treatment would produce desirable permanent colours of red spinels with an excellent stability and it will definitely create a considerable economic advantage in the near future by this way as one of the methods of commercial gem treatments.