



# **International Journal on Recent Researches In Science, Engineering & Technology**

**(Division of Mechanical Engineering)**

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**Research Paper**

Available online at: [www.jrrset.com](http://www.jrrset.com)

ISSN (Print) : 2347-6729

ISSN (Online) : 2348-3105

**Volume 5, Issue 5,  
May 2017**

**JIR IF : 2.54**

**DIIF IF : 1.46**

**SJIF IF: 1.329**

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## **Experimental work on finding the influence of garlic oil as quenching medium for heat treatment of plain carbon steels**

**Sani and Shanthi**

### **Abstract**

The authors conducted experimental work on finding the influence of garlic oil as quenching medium for heat treatment of plain carbon steels. They heated the steel to  $860^{\circ}\text{C}$  and soaked for one hour quenched and tempered separately in water and garlic oil. The mechanical properties like tensile strength, hardness, impact and ductility of the plain carbon steel were investigated under two different quenching media namely water and garlic oil. The quenched and tempered temperatures were  $300, 350, 400$  and  $450^{\circ}\text{C}$ . Their results indicated that tensile strength of  $2706\text{N/mm}^2$  was obtained for samples quenched and tempered at  $300^{\circ}\text{C}$  in water, while garlic oil gave lowest tensile strength of  $1906\text{N/mm}^2$  when tempered at  $450^{\circ}\text{C}$ . There were variations in the microstructure of tempered samples. In general they observed that the tensile strength and hardness values were decreasing and impact strength and ductility increases with increase of temperature. Further garlic oil quenched steel exhibited best property in impact strength and ductility.