

LABORATORY FACILITY FOR RESEARCH OF FORCED CONVECTION OF IOBIOFLUIDS

Saša Laloš¹, Siniša Bikić², Maša Bukurov², Milivoj Radojčin³, Ivan Pavkov³

¹University of Banja Luka, Faculty of Mechanical Engineering,
Vojvode Stepe Stepanovića 71, Banja Luka 78000, Bosnia and Herzegovina

²University of Novi Sad, Faculty of Technical Sciences,
Trg Dositeja Obradovića 6, 21000 Novi Sad, Serbia

³University of Novi Sad, Faculty of Agriculture,
Trg Dositeja Obradovića 8, 21000 Novi Sad, Serbia

sasa.lalos@mf.unibl.org

ABSTRACT

The subject of the research was laboratory facility for research of forced convection of iobiofluids (ionic biofluids). Iobiofluids are a new class of dispersions obtained by suspending particles produced from agricultural biomass in ionic liquids as base fluids. Iobiofluids could be in the future sustainable alternative to ionanofluids (ionic nanofluids). With their enhanced thermal properties iobiofluids could be used as new heat transfer fluid in heat exchangers. In the frame of the research was done setting up and testing of developed and constructed laboratory facility for research of forced convection of iobiofluids. The aim of the research was confirmation of laboratory facility parameters. Within the research was conducted the first phase of the facility parameters confirmation by using distilled water. The results were measured after stabilization of parameters at laboratory facility. The laboratory facility parameters were successfully confirmed for laminar flow regime. The experimental results were verified by comparison with results calculated from the well known Darcy-Weisbach and Shah's equations. In the second phase confirmation of the laboratory facility parameters will be done by using certain iobiofluids.

Keywords: iobiofluids, ionanofluid, agricultural biomass, forced convection

This paper is the result of research within the project "Research and development of ionic bio fluids – RIDIBF" which is implemented within the Program for excellent projects of young researchers – PROMIS funded by the Science Fund of the Republic of Serbia.