**Application of LIBS in elemental analysis of pig shoulder bone**

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The LIBS technique based on low pulse energy TEA CO2 laser was used for the elemental analysis of pig shoulder bone. The spectra showed atomic and single-charged ionic lines of bone matrix elements (Ca and P) and other elements (e.g., Mg, Zn, Na, K, and C) with a good signal-to-noise ratio suitable for chemical analysis. The detection limits for Mg and Zn were 16 ppm and 12 ppm. Respectively (Figure 1). Carbon and Hα lines were used for plasma diagnostics (electron concentration of 2.9×1017 cm-3 and 1.9×1017 cm-3; ionization temperature in the range from 10500 to 18100 K) and optical profilometry for depth profile analysis.



*Figure 1. Part of LIBS spectra of the pig shoulder bone sample: Mg I and Mg II lines*

**References**

1. L.J**.** Radziemski, D.A. Cremers, *Laser-induced plasmas and applications* (Marcel Dekker, New York), **1989**

2. D.A. Cremers , R.C. Chinni, *Appl. Spectrosc. Rev*. **2009**, *44*, 457.

**Acknowledgments**

This work was partially supported by the Ministry of Education, Science and Technological Development of the Republic of Serbia through Contract No. 451-03-68/2020-14/200146 .