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 b. Nomor ISSN : 0021-9037, eISSN: 1573-8647
 c. Vol, No., Bln Thn : Vol 86 No 1, Maret 2019
 d. Penerbit : Springer GmbH & Co, Auslieferungs-Gesellschaft
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Semarang, 4 Februari 2022

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Reviewer 2



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2. Ruang lingkup dan kedalaman pembahasan:

Paper membahas tentang analisis unsur karbon (C) dalam tanah dengan metode spektroskopi plasma laser menggunakan laser karbon dioksida (CO₂). Partikel halus sampel tanah ditempelkan pada permukaan logam. Hasil menunjukkan laser dapat menginduksi plasma bersuhu tinggi yang bercahaya yang menghasilkan nilai analisis batas C dalam sampel tanah sekitar 23 mg/kg.

3. Kecukupan dan kemutakhiran data/informasi dan metodologi:

Metodologi yang digunakan cukup baik dan mendukung riset ini. Penelitian menggunakan metode spektroskopi plasma laser dari laser berdenyut CO₂. Referensi yang digunakan pada artikel ini sebanyak 11 referensi, dengan angka Turnitin similarity index sebesar 12%.

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Semarang, 4 Februari 2022

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NIP. 19710813 1995121001

Unit Kerja : Fisika

Bidang Ilmu: Fakultas Sains dan Matematika

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2. Ruang lingkup dan kedalaman pembahasan:

Paper ini membahas analisi unsur karbon (C) dalam tanah dengan metode spektroskopi plasma laser menggunakan laser berdenyut karbon dioksida (CO₂). Partikel halus sampel tanah ditempelkan pada permukaan logam dan kemudian dibombardir dengan laser berdenyut tersebut untuk menginduksi plasma bersuhu tinggi yang bercahaya, yang menghasilkan nilai analisis batas C dalam tanah sekitar 23 mg/kg.

3. Kecukupan dan kemutakhiran data/informasi dan metodologi:

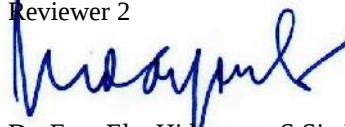
Data-data serta metodologi yang digunakan baik dan mendukung riset ini. Penelitian ini menggunakan metode spektroskopi plasma laser dari laser berdenyut CO₂ yang lebih unggul dari teknik standar dari laser-induced breakdown spectroscopy (LIBS).

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Khumaeni A.^a ; Budi W.S.^a; Wardaya A.Y.^a; Idris N.^b; Kurniawan K.H.^c; Kagawa K.^d

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^a Diponegoro University, Department of Physics, Faculty of Sciences and Mathematics, Tembalang, Semarang, Indonesia

^b Syiah Kuala University, Department of Physics, Faculty of Mathematics and Natural Sciences, Banda Aceh, Indonesia

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Khumaeni, A. , Niki, H. , Deguchi, Y.
(2009) *Journal of the Korean Physical Society*

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Analysis of carbon (C) in soil has been successfully made by laser plasma spectroscopy using a pulsed carbon dioxide (CO₂) laser. Fine particles of soil sample were attached on a surface of the metal subtarget by adding a small amount of moisture; the metal was used to initiate the gas plasma. Experimentally, a pulsed laser was focused on the subtarget to induce a luminous plasma. The particles

were vaporized and entered the plasma region. Dissociation and excitation happened in the high-temperature plasma region. The result certified that an analysis of C in soil can be demonstrated. A further measurement revealed that a calibration curve of C was successfully carried out. The limit of detection of C in the soil was around 23 mg/kg. © 2019, Springer Science+Business Media, LLC, part of Springer Nature.

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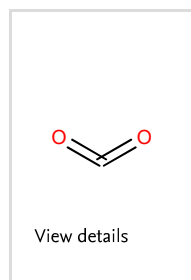
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Bakun, A.

Global climate change and intensification of coastal ocean upwelling

(1990) *Science*, 247 (4939), pp. 198-201. Cited 915 times.

www.sciencemag.org

doi: 10.1126/science.247.4939.198

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Karl, T.R., Trenberth, K.E.

Modern Global Climate Change ([Open Access](#))

(2003) *Science*, 302 (5651), pp. 1719-1723. Cited 1306 times.

doi: 10.1126/science.1090228

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(2004) *Science*, 304 (5677), pp. 1623-1627. Cited 4728 times.
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-
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Soil carbon sequestration impacts on global climate change and food security

(2004) *Science*, 304 (5677), pp. 1623-1627. Cited 4728 times.
doi: 10.1126/science.1097396

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-
- ☐ 4 Cremers, D.A., Ebinger, M.H., Breshears, D.D., Unkefer, P.J., Kammerdiener, S.A., Ferris, M.J., Catlett, K.M., (...), Brown, J.R.
Measuring total soil carbon with laser-induced breakdown spectroscopy (LIBS)

(2001) *Journal of Environmental Quality*, 30 (6), pp. 2202-2206. Cited 125 times.
<https://access.onlinelibrary.wiley.com/doi/10.2134/jeq2001.2202>
doi: 10.2134/jeq2001.2202

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-
- ☐ 5 Davidson, E.A., Janssens, I.A.
Temperature sensitivity of soil carbon decomposition and feedbacks to climate change ([Open Access](#))

(2006) *Nature*, 440 (7081), pp. 165-173. Cited 4458 times.
doi: 10.1038/nature04514

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-
- ☐ 6 Zou, X.M., Ruan, H.H., Fu, Y., Yang, X.D., Sha, L.Q.
Estimating soil labile organic carbon and potential turnover rates using a sequential fumigation-incubation procedure

(2005) *Soil Biology and Biochemistry*, 37 (10), pp. 1923-1928. Cited 158 times.
doi: 10.1016/j.soilbio.2005.02.028

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- ☐ 7 Paul, E.A., Morris, S.J., Bohm, S.
The determination of soil C pool size and turnover rates: Biophysical fractionation and tracers
(2000) *Assessment Methods for Soil Carbon*. Cited 195 times.
CRC Press, Florida
-
- ☐ 8 Cremers, D.A., Radziemski, L.J.
Handbook of Laser-induced Breakdown Spectroscopy

(2006) *Handbook of Laser-induced Breakdown Spectroscopy*, pp. 1-283. Cited 1600 times.
<http://onlinelibrary.wiley.com/book/10.1002/0470093013>
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doi: 10.1002/0470093013

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□ 9 Krasniker, R., Bulatov, V., Schechter, I.

Study of matrix effects in laser plasma spectroscopy by shock wave propagation

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(2001) *Spectrochimica Acta - Part B Atomic Spectroscopy*, 56 (6), pp. 609-618. Cited 82 times.

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doi: 10.1016/S0584-8547(01)00194-X

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□ 10 Idris, N., Kagawa, K., Sakan, F., Tsuyuki, K., Miura, S.

Analysis of heavy metal pollution in soil using transversely excited atmospheric CO₂ laser-induced plasma by trapping the soil in microstructured holes on metal subtargets

(2007) *Applied Spectroscopy*, 61 (12), pp. 1344-1351. Cited 36 times.

doi: 10.1366/000370207783292181

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□ 11 Budi, W.S., Suyanto, H., Kurniawan, H., Tjia, M.O., Kagawa, K.

Shock excitation and cooling stage in the laser plasma induced by a Q-switched Nd:YAG laser at low pressures

(1999) *Applied Spectroscopy*, 53 (6), pp. 719-730. Cited 42 times.

doi: 10.1366/0003702991947162

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Study of the Interaction of Quercetin and Taxifolin with β -Lactoglobulin by Fluorescence Spectroscopy and Molecular Dynamics Simulation

[Fatemeh S. Mohseni-Shahri](#) [Journal of Applied Spectroscopy](#) **86**, 154–161 (2019)**58** Accesses | **2** Citations | [Metrics](#)

The interaction between quercetin and taxifolin with β -lactoglobulin (BLG) was investigated via various methods, including fluorescence spectroscopy, molecular docking and molecular dynamics (MD) simulation. The results have demonstrated that quercetin binds BLG with an affinity higher than that of taxifolin, which is attributed to the nonplanar C-ring and steric hindrance effect in taxifolin. The synchronous fluorescence spectra shows that quercetin and taxifolin do not induce conformational changes of BLG. Molecular docking studies have demonstrated that several amino acids are involved in stabilizing the interaction. Analysis of the MD simulation trajectories shows that the root mean square

39. M. Sahihi, Z. Heidari-Koholi, and A. K. Bordbar, *J. Macromol. Sci. B: Phys.*, **51**, 2311–2323 (2015).
-
40. D. Renard, *Small Angle Neutron Scattering Study of Protein-Polysaccharide Mixtures Undershear*, Dissertation thesis Universit' e de Nantes, France (1994).
-
41. L. H. Riihimäki, M. J. Vainio, J. M. Heikura, K. H. Valkonen, V. T. Virtanen, and P. M. Vuorela, *J. Agric. Food Chem.*, **56**, 7721–7729 (2008).
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A Detailed Investigation of Certain Electronic Transitions of the BaD Molecule for Astrophysical Applications

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The spectroscopic and ro-vibrational constants, FCFs and r-centroids have been evaluated in the present study for $A^2\Pi_{1/2}-X^2\Sigma$, $A^2\Pi_{3/2}-X^2\Sigma$, $B^2\Sigma-X^2\Sigma$, $E^2\Pi_{1/2}-X^2\Sigma$, $E^2\Pi_{3/2}-X^2\Sigma$, $F^2\Sigma-X^2\Sigma$, and $L^2\Pi-X^2\Sigma$ band systems of the barium deuteride (BaD) molecule by adopting a reliable numerical integration procedure. The physical and astrophysical significances of the evaluated FCFs and r-centroids are discussed for all these band systems. The effect of vibration rotation interaction (VRI) on FCFs for the bands of the chosen band systems of BaD molecule is also studied. It is found from the results that the effect of VRI on FCFs is not so significant for the rotational quantum

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