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Iodimetric assay for evaluating potential of antioxidants by iodine reducing activity

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Abstract: A photometric iodimetric assay has been optimized to enable evaluation of antioxidants on the basis of their iodine reducing activity (IRA). Iodine mass is monitorable at a wide range of wavelengths: 365, 400, 430 and 450 nm with regression estimate decreasing with increase in choice of wavelength ($r = -0.99$). Monitoring for the present work has been done at 430 nm, which provided more stable values, with least interference from flavonoids and cover a wider range of iodine concentrations. IRA has been expressed in unit, μmole iodine reduced μmole^{-1} test agent. The presence of acid (1% HCl) has affected IRA varyingly; commencing from no effect (ascorbic acid, hydroquinone) to increase in activity (TGA), to marked decrease in activity (flavonoids, resorcinol, pyrogallol, thiourea) to complete blockade of action (catechol, phenol, guaiacol, gallic acid). The assay has enabled to provide notable structure activity relationship features in test flavonoids and phenolics. The assay is anticipated to be used as a part of battery of tests for screening antioxidants for their further investigation by advanced techniques.

Key-words: Iodimetric assay, Photometric assay, Antioxidants, Iodine reducing activity.

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