

Video Article

November 2016 - This Month in JoVE: Turtle tracking, acids in coffee, squid coloration and glucose tolerance in primates

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Abstract

Here's a look at what's coming up in the November 2016 issue of [JoVE: The Journal of Visualized Experiments](#).

Think you're good at navigation? How about if you had no access to a GPS, and were also a turtle? In [JoVE Behavior](#) this month, [Roth et al.](#) (our authors) investigated the role of cognition in the navigation strategies of Eastern painted turtles. After administering a drug that manipulates the cognitive spatial abilities of the animals, the team tracked radio-tagged turtles moving on familiar routes between seasonal water sources. The results showed that the adult animals use a combination of spatial memory and recall to find their pools rather than solely environmental cues...and they didn't use their cellphones once.

Whether you're mocha mad, cappuccino crazy, an espresso purist, or down with the pumpkin spice, coffee is arguably the ultimate crossover of comfort and fuel. Too many short chain carboxylic acids in your cup of joe, however, can turn your morning sour. In [Jove Chemistry](#) this month, [Vaughan et al.](#) (our authors) demonstrate methods to safely and rapidly evaluate organic acid levels in food and beverage samples. Using *Coffea arabica* seeds as an example, the team showed that capillary electrophoresis could identify organic acids to a low limit of detection, and at much lower cost than traditional methods. It's great news for a drink that is perhaps even as vital to the productivity of labs around the world as [JoVE](#).

Our journey so far has taken us from terrestrial ponds, then back to land, and now we head out to sea for the subject of our third video spotlight this month...the brilliant and cryptic squid. Cephalopods can undergo rapid color changes, as a response to their environment, for communication, or for sensing. In [JoVE Biology](#), [DiBona et al.](#) (our authors) reveal a new method for isolating the nanostructured pigment granules from the colorful chromatophores of these oceanic enigmas. Using a combination of simple dissection, sonication, and acidic methanol extraction, the team shows how the soluble pigments can then be extracted from these granules, allowing detailed examination of the individual components that facilitate the dynamic mechanism of adaptive coloration in cephalopods.

Finally this month, we turn our attention to the all-encompassing topic of health. In [JoVE Medicine](#), [Staup et al.](#) (our authors) investigate the use of the intravenous glucose tolerance test, or IVGTT, to characterize the metabolic condition of large colonies of non-human primates. A convenient and simple assay that is routinely used in humans, the authors demonstrate that the IVGTT can also be used in macaques to monitor the progression of animals from healthy, toward overt diabetes. Amongst other uses such as studying metabolic disease, this research can help to inform animal care and health management.

You've just had a sneak peek at the November 2016 issue of [JoVE](#). Visit the website to see the full-length articles, plus many more, in [JoVE: The Journal of Visualized Experiments](#).

Video Link

The video component of this article can be found at <https://www.jove.com/video/5818/>

Protocol

A Method for Extracting Pigments from Squid *Doryteuthis pealeii*

Christopher W. DiBona¹, Thomas L. Williams¹, Sean R. Dinneen¹, Stephanie F. Jones Labadie¹, Leila F. Deravi^{1,2}

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A protocol for the extraction of pigments from the nanostructured granules in squid *Doryteuthis pealeii* chromatophores is presented.

Using Capillary Electrophoresis to Quantify Organic Acids from Plant Tissue: A Test Case Examining *Coffea arabica* Seeds

Michael Joe Vaughan^{1,2}, Ann Chanon³, Joshua J. Blakeslee^{1,3,4}

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This article presents a method for the detection and quantification of organic acids from plant material using free zonal capillary electrophoresis. An example of the potential application of this method, determining the effects of a secondary fermentation on organic acid levels in coffee seeds, is provided.

Using Pharmacological Manipulation and High-precision Radio Telemetry to Study the Spatial Cognition in Free-ranging Animals

Timothy C. Roth^{*1}, Aaron R. Krochmal^{*2}, William B. Gerwig, IV¹, Sage Rush³, Nathaniel T. Simmons², Jeffery D. Sullivan⁴, Katrina Wachter⁵

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This paper describes a novel protocol that combines the pharmacological manipulation of memory and radio telemetry to document and quantify the role of cognition in navigation.

Characterization of Metabolic Status in Nonhuman Primates with the Intravenous Glucose Tolerance Test

Michael Staup, George Aoyagi, TeQuana Bayless, Yixin Wang, Keefe Chng

Cardiovascular and Metabolism Group, **Crown Bioscience**

The goal of this protocol is to present a standard method to perform intravenous glucose tolerance tests (IVGTTs) to assess glycemic control in nonhuman primates and assess their metabolic status from healthy to dysmetabolic.

Disclosures

No conflicts of interest declared.