

# Happy Anniversary, Journal of Chemical Ecology!

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Wedding anniversaries invite both celebration and sentiment—the union of two distinct lives into one is certainly noteworthy, and an entire industry has arisen to provide for couples creative suggestions for commemorating such occasions. For 40th anniversaries, e.g., the designated traditional flower is the nasturtium, *Tropaeolum majus* (<http://bit.ly/11M7wef>). In recognizing the 40th anniversary of the founding of the *Journal of Chemical Ecology*, it is remarkably apt that nasturtiums have an important place in the history of chemical ecology. A member of the monogeneric family Tropaeolaceae in the order Brassicales, along with the substantially larger family Brassicaceae, the nasturtium has been known to be a non-preferred host plant for pierid crucifer specialists since 1924, when C.R. Twinn reported his observations on the host-selection habit of *Pieris rapae* in the 55th Annual Report of the Entomological Society of Ontario. At least 9 papers on pierids and nasturtiums have been published in JCE; the basis for the ecological difference in host utilization, as it turns out, is due largely to plant chemistry.

The discipline of chemical ecology, the study of the ways in which chemicals affect the distribution, abundance, and interaction of organisms, is itself a marriage of sorts, a merger of two distinct and hitherto largely mutually exclusive disciplines for the purpose of “promoting an understanding of the origin, function, and significance of natural chemicals that mediate interactions within and between organisms.” Since its inception, however, this enterprise necessarily has also involved many disciplines other than chemistry and ecology, including (but not limited to) behavior, evolution, genetics, and physiology.

In 2003, a National Research Council Committee prepared a report titled, “Bio2010: Transforming Undergraduate Education for Future Research Biologists,” the gist of which was that interdisciplinary thinking and work should become “second nature” in biology (Pain 2003); by this time chemical ecologists had been thinking and working interdisciplinarily for almost 30 years. Searching the Web of Science and using the “topic” category, I did a survey to document the interdisciplinary history of JCE. Of the 24,017 papers appearing in the journal between 1975 and 2003, those dealing with chemistry (735, 3.1 %) or ecology (6,113, 25.4 %) represent a distinct minority. “Behavior” represented the largest discipline, with 10,808 publications (45.0 %); also represented were physiology (10,756, 44.8 %), evolution (404, 1.7 %),

genetics (441, 1.8 %), and physics (68, 0.2 %). The breadth of taxon coverage also was remarkable; certainly the majority dealt with insects (12,499, 52.0 %) and/or plants (11,068, 46.1 %), but other taxa included fungi (241), mammals (479), birds (62), fish (140), reptiles (76), amphibians (30), tunicates (5), coral (29), nematodes (50), molluscs (62), echinoderms (10), and bacteria (153). In keeping with its mission to be useful to society, fully 947 of the papers dealt with “management” in some way, shape, or form.

Now, ten years after the rest of biology woke up to interdisciplinarity, JCE continues to blaze the trail and is arguably more interdisciplinary than ever. Of the 11,113 papers published between 2004 and 2013, 919 dealt with “ecology” (8.2 %) and 1036 dealt with “chemistry” (9.4 %); other disciplines represented included behavior (1095, 9.8 %), physiology (5020, 45.2 %), evolution (217, 2.0 %), genetics (267, 2.4 %), and physics (11, 0.1 %). Some disciplines grew dramatically in representation; the 27 papers relevant to engineering in this period represents a 7-fold increase from 4 appearing from 1975 to 2003 and references to “genomic” work increased 15-fold in the 2004–2013 period relative to the 1975–2003 period. I think I might have been the first to publish a genome-centric paper in the journal (Berenbaum 2002). I sent the manuscript to the journal knowing that JCE had no record of publishing in genomics but I was confident that the value of this new discipline would be readily apparent to editors and reviewers for whom interdisciplinary thinking was “second nature”.

It’s heartening to know that JCE remains a shining example within the biological sciences for transcending disciplinary barriers and I’m confident that this inclusivity will continue to grow, undoubtedly to be celebrated again in ten years, at the 50th anniversary of the Journal’s founding. By the way, the floral symbol for the 50th anniversary is the violet and it should surprise no one that there are papers on the chemical ecology of *Viola* published in the *Journal of Chemical Ecology*.

## References

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