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Mapping the organic N distribution in the rhizosphere of maize

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The combination of two non-destructive 2D imaging methods: amino-mapping and zymography have been developed and applied to monitor organic nitrogen allocation in the rhizosphere of *Zea mays* L. under contrasting nutrient treatments. Amino-mapping was based on the fluorescent reaction of *o*-phthaldialdehyde and β -mercaptoethanol enabling to estimate the content of labile organic N, playing an important role in soil nitrogen cycling. Amino-mapping was coupled with leucine-aminopeptidase zymography to quantify the amino-N release in the rhizosphere of maize grown under climate chamber conditions for 3 weeks. The combination of the two approaches enabled visualization of organic N hotspots either distinctly separated or overlapped with the hotspots of enzymatic activity. This work was conducted within the framework of the priority program 2089 “Rhizosphere spatiotemporal organization – a key to rhizosphere functions”, funded by German Research Foundation (DFG – Project number: 403664478). Seeds of the maize were provided by Caroline Marcon and Frank Hochholdinger (University of Bonn).