Supplementary Information

3D observational analysis of convection around and inside a self-propelled droplet

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S1. PIV data about the convection around the droplet

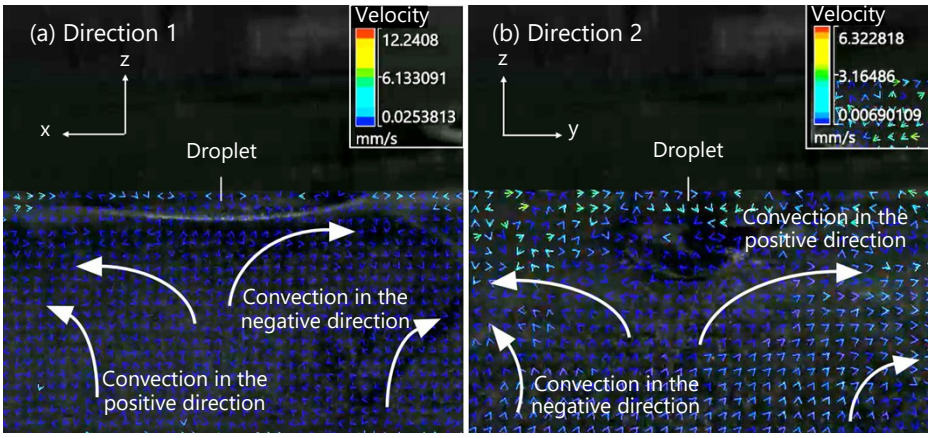

Fig. S1 Convection generated around a droplet, under the condition of using the aqueous solution with a concentration of 0.5 mL / 100 mL of water and the asymmetrical exoskeleton. (a) Convection captured from Direction 1. (b) Convection captured from Direction 2.

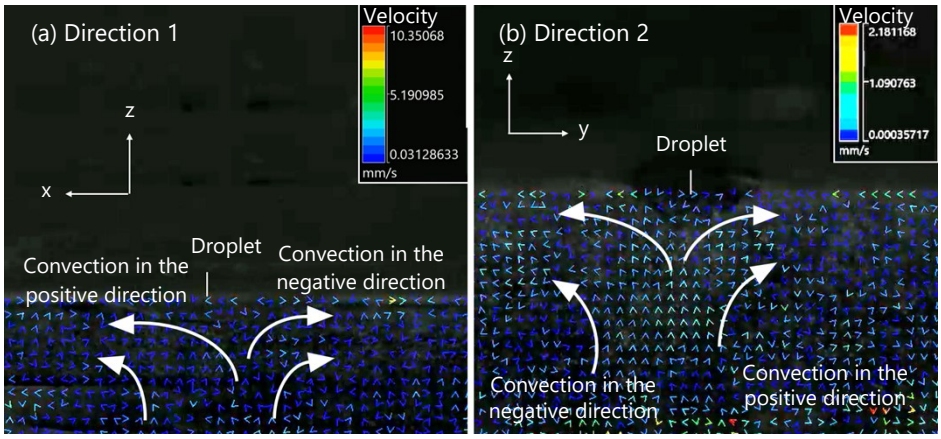

Fig. S2 Convection generated around a droplet, under the condition of using the aqueous solution with a concentration of 2.3 mL / 100 mL of water and the symmetrical exoskeleton. (a) Convection captured from Direction 1. (b) Convection captured from Direction 2.

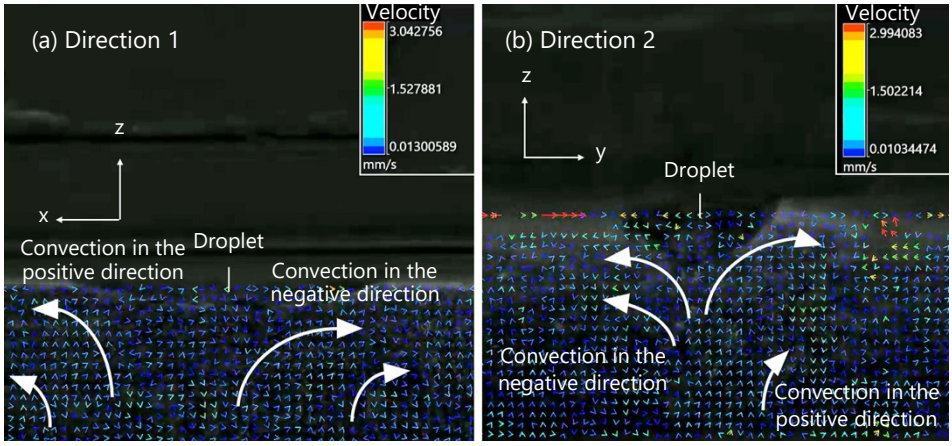

Fig. S3 Convection generated around a droplet, under the condition of using the aqueous solution with a concentration of 2.3 mL / 100 mL of water and the asymmetrical exoskeleton. (a) Convection captured from Direction 1. (b) Convection captured from Direction 2.

S2. PIV data about the convection inside the droplet

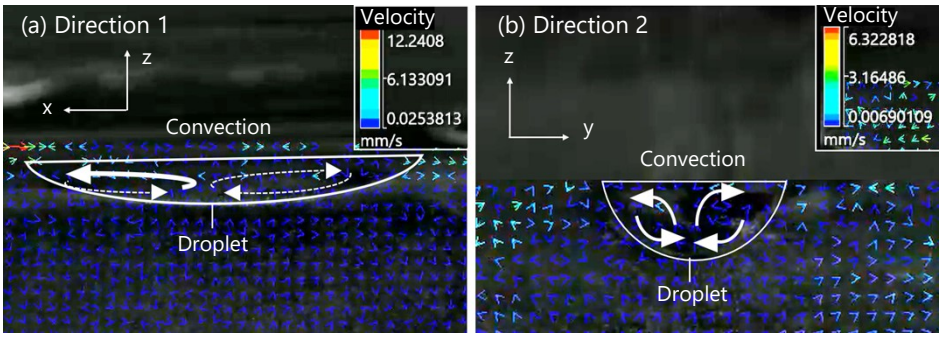

Fig. S4 Convection generated inside a droplet, under the condition of using the aqueous solution with a concentration of 0.5 mL / 100 mL of water and the asymmetrical exoskeleton. (a) Convection captured from Direction 1. (b) Convection captured from Direction 2.

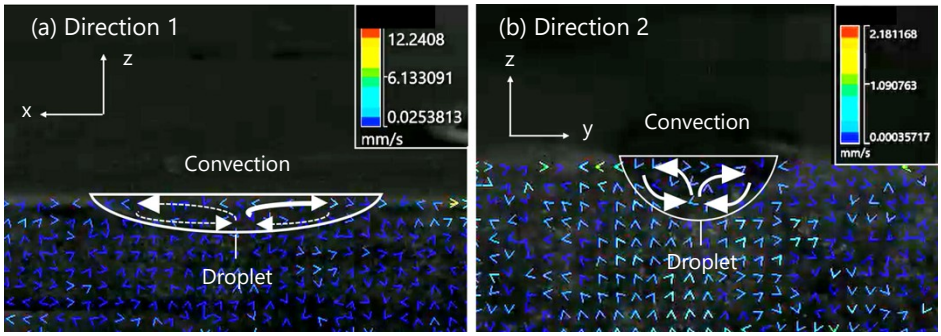

Fig. S5 Convection generated inside a droplet, under the condition of using the aqueous solution with a concentration of 2.3 mL / 100 mL of water and the symmetrical exoskeleton. (a) Convection captured from Direction 1. (b) Convection captured from Direction 2.

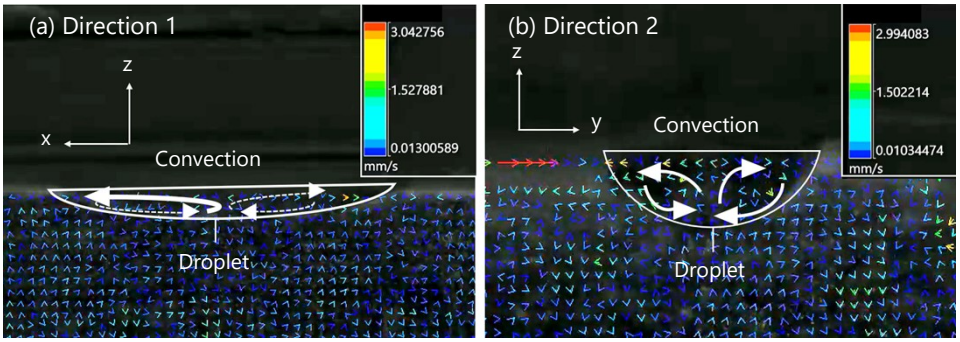

Fig. S6 Convection generated inside a droplet, under the condition of using the aqueous solution with a concentration of 2.3 mL / 100 mL of water and the asymmetrical exoskeleton. (a) Convection captured from Direction 1. (b) Convection captured from Direction 2.

S3. Supporting video information

Movie S1: Self-propulsion behavior of a 1-pentanol droplet under the condition of using the aqueous solution with a concentration of 0.5 mL / 100 mL water and the symmetrical exoskeleton.

Movie S2: Self-propulsion behavior of a 1-pentanol droplet under the condition of using the aqueous solution with a concentration of 0.5 mL / 100 mL water and the asymmetrical exoskeleton.

Movie S3: Self-propulsion behavior of a 1-pentanol droplet under the condition of using the aqueous solution with a concentration of 2.3 mL / 100 mL water and the symmetrical exoskeleton.

Movie S4: Self-propulsion behavior of a 1-pentanol droplet under the condition of using the aqueous solution with a concentration of 2.3 mL / 100 mL water and the asymmetrical exoskeleton.