

Polymer formulations for preventing wind and water erosion of saline soil

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S1. The soil was dried to an air-dry state at a temperature of $22\pm 2^\circ\text{C}$ and a relative air humidity of $25\pm 5\%$ and sifted through a sieve with a mesh size of 2 mm.

The soil particle size distribution (Table S1) was determined by laser diffraction using a Mastersizer 3000E laser particle size analyzer (Malvern, UK), as described previously.^{S1}

Table S1. Granulometric composition of soil

Size, μm	< 1	1-5	5-10	10-50	50-250	250-500	500-1000
Content, %	1.7	13.7	12.0	48.6	23.2	0.5	0.3

S2. PDADMAC with $M_w = 200\text{--}350$ kDa, PAM with $M_w = 520$ kDa and 80 wt.% of acrylamide, polyvinyl alcohol with $M_w = 200\text{--}350$ kDa (all from Sigma-Aldrich, USA), HYPAN with $M_w = 300$ kDa and an acrylic acid/acrylamide molar ratio of 75/25 (Burkhimsnab, Moscow, Russia), XAN with $M_w = 1000$ kDa (Ziboxan F200 from Biochemical, China) were used as received.

HYPAN-PDADMAC IPEC with a $[\text{PDADMAC}]/[\text{HYPAN}] = [\text{N}^+]/[\text{COO}^-] = 0.1$ molar ratio of polymer units was obtained by mixing 1 wt.% solutions of HYPAN and PDADMAC in a 10^{-2} M phosphate buffer in a volume ratio of 8.6:1.^{S2}

S3. SEM micrographs were obtained using a JEOL JSM-6380LA microscope (Japan) in the electron microscopy laboratory, Department of Biology, MSU.

References

- S1. I. G. Panova, V. V. Demidov, P. S. Shulga, L. O. Ilyasov, M. A. Butilkina and A. A. Yaroslavov, *Land Degrad. Dev.*, 2021, **32**, 1022; <https://doi.org/10.1002/ldr.3743>.
- S2. O. A. Novoskoltseva, N. G. Loiko, Y. A. Nikolaev, A. O. Lisin, I. G. Panova and A. A. Yaroslavov, *Polym. Int.*, 2022, **71**, 697; <https://doi.org/10.1002/pi.6289>.