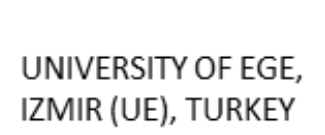




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Innovative Sustainable technologies TO extend the shelf life of Perishable MEDiterranean fresh fruit, vegetables, and aromatic plants and to reduce WASTE: the experience of prima STOPMEDWASTE Project

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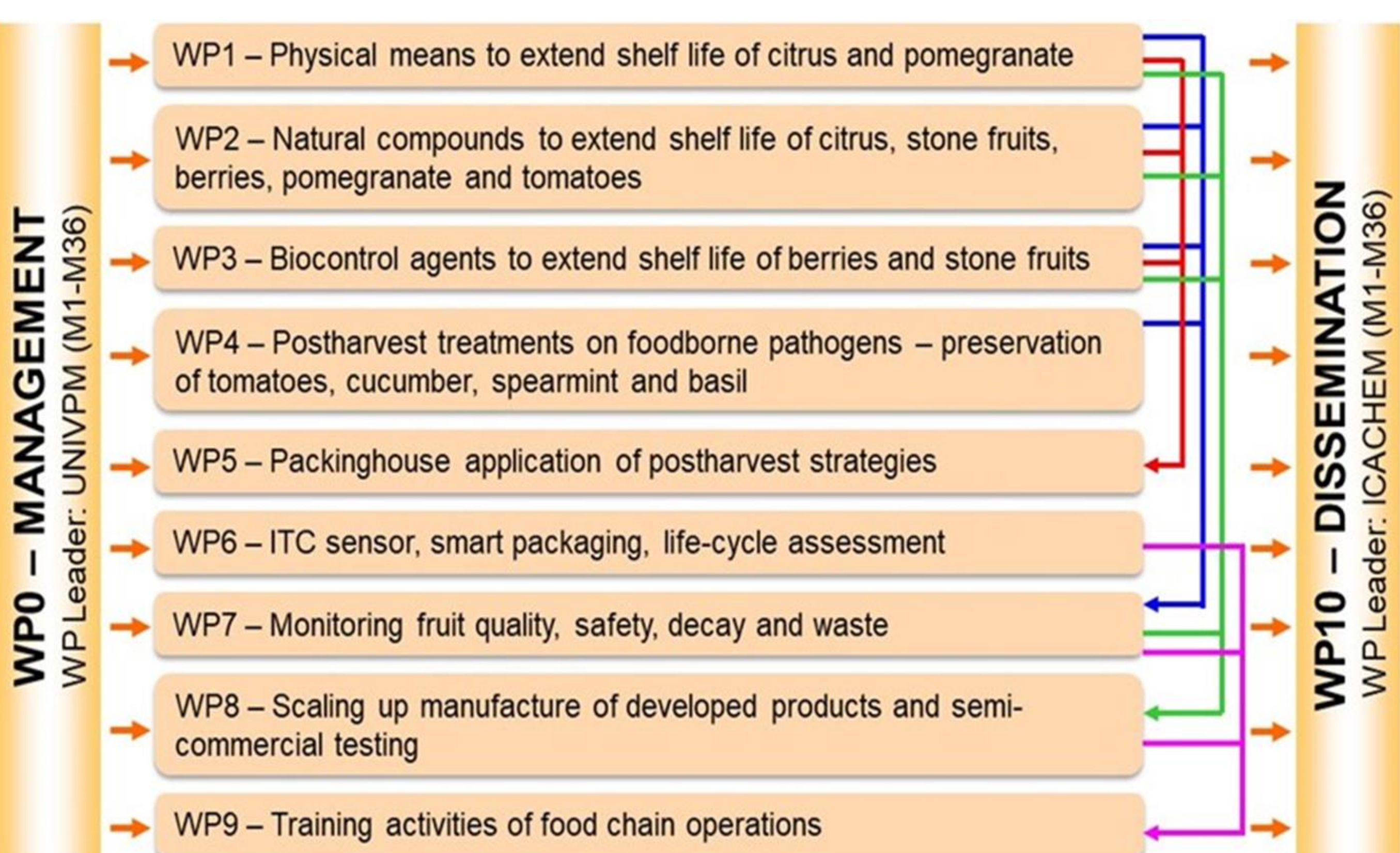
Participant



Published paper

- Allagui, M.B., Moumni, M., Romanazzi, G., 2023. Antifungal Activity of Thirty Essential Oils to Control Pathogenic Fungi of Postharvest Decay. *Antibiotics*, 13(1), p.28. <https://doi.org/10.3390/antibiotics13010028>
- Aloi F., Riolo M., Sanzani S.M., Mincuzzi A., Ippolito A., Siciliano I., Pane A., Gullino M.L., Cacciola, S.O., 2021. Characterization of *Alternaria* species associated with heart rot of pomegranate fruit. *Journal of Fungi*, 7(3), 172. <https://doi.org/10.3390/jof7030172>
- Alvarez, M. V., Palou, L., Taberner, V., Fernández-Catalán, A., Argente-Sanchis, M., Pitta, E., Pérez-Gago, M. B., 2022. Natural Pectin-Based Edible Composite Coatings with Antifungal Properties to Control Green Mold and Reduce Losses of 'Valencia' Oranges. *Foods*, 11(8), 1083. <https://doi.org/10.3390/foods11081083>
- Alvarez, M.V., Pérez-Gago, M.B., Taberner, V., Settler-Ramírez, L., Martínez-Blay, V., Palou, L., 2023. Postharvest Application of Novel Bio-Based Antifungal Composite Edible Coatings to Reduce Sour Rot and Quality Losses of 'Valencia' Oranges. *Coatings*, 13(8), p.1412. <https://doi.org/10.3390/coatings13081412>
- Álvarez-García, S., Moumni, M., Romanazzi, G., 2023. Antifungal activity of volatile organic compounds from essential oils against the postharvest pathogens *Botrytis cinerea*, *Monilinia fructicola*, *Monilinia fructigena*, and *Monilinia laxa*. *Frontiers in Plant Science*, 14. <https://doi.org/10.3389/fpls.2023.1274770>
- Buonsenso, F., Schiavon, G., Spadaro, D., 2023. Efficacy and Mechanisms of Action of Essential Oils' Vapours against Blue Mould on Apples Caused by *Penicillium expansum*. *International Journal of Molecular Sciences*, 24(3), 2900. <https://doi.org/10.3390/ijms24032900>
- Chrysargyris A., Rousos C., Xylia P., Tzortzakis N., 2021. Vapor application of sage essential oil maintain tomato fruit quality in breaker and red ripening stages. *Plants*, 10, 2645. <https://doi.org/10.3390/plants10122645>
- Chrysargyris, A., Ahmed, Z.F., Tzortzakis, N., 2021. Application of rosemary and eucalyptus essential oils and their main component on the preservation of apple and pear fruits. *Horticulturae*, 7(11), 479. <https://doi.org/10.3390/horticulturae7110479>
- De Miccolis Angelini, R. M., Landi, L., Raguseo, C., Pollastro, S., Faretra, F., Romanazzi, G., 2022. Tracking of diversity and evolution in the brown rot fungi *Monilinia fructicola*, *Monilinia fructigena*, and *Monilinia laxa*. *Frontiers in microbiology*, 680. <https://doi.org/10.3389/fmicb.2022.854852>
- Di Millo, B., Martínez-Blay, V., Pérez-Gago, M.B., Argente-Sanchis, M., Grimal, A., Baraldi, E., Palou, L., 2021. Antifungal Hydroxypropyl Methylcellulose (HPMC)-Lipid Composite Edible Coatings and Modified Atmosphere Packaging (MAP) to reduce postharvest decay and improve storability of 'Mollar de Elche' pomegranates. *Coatings* 11, 308. <https://doi.org/10.3390/coatings11030308>
- Fanesi, B., D'Ortenzio, A.L., Kuhalskaya, A., Nartea, A., Fiorini, D., Moumni, M., Landi, L., Lucci, P., Romanazzi, G., Pacetti, D., 2023. Identification of volatile organic compounds as markers to detect *Monilinia fructicola* infection in fresh peaches. *Postharvest Biology and Technology*, 206, p.112581. <https://doi.org/10.1016/j.postharvbio.2023.112581>
- Guarnaccia, V., Remolif, G.M., Nari, L., Gualandri, V., Angeli, D., Oettl, S., Dijksterhuis, J., Boekhout, T., Spadaro, D., 2024. Characterization of fungal species involved in white haze disorder on apples in Northern Italy and description of *Golubevia mali* sp. nov. and *Entyloma mali* sp. nov. *Postharvest Biology and Technology*, 209, p.112678. <https://doi.org/10.1016/j.postharvbio.2023.112678>
- Hammami, R., Oueslati, M., Smiri, M., Nefzi, S., Ruissi, M., Comitini, F., Romanazzi, R., Cacciola, S. O., Sadfi Zouaoui, N., 2022. Epiphytic yeasts and bacteria as candidate biocontrol agents of green and blue molds of citrus fruits. *Journal of Fungi*, 8(8), 818. <https://doi.org/10.3390/jof8080818>
- Landi, L., Peralta-Ruiz, Y., Chaves-López, C., Romanazzi, G., 2021. Chitosan coating enriched with *Ruta graveolens* L. essential oil reduces postharvest anthracnose of papaya (*Carica papaya* L.) and modulates defense-related gene expression. *Frontiers in Plant Science*, 2434. <https://doi.org/10.3389/fpls.2021.765806>
- Martínez-Blay, V., Taberner, V., Pérez-Gago, M.B., Palou, L., 2021. Postharvest treatments with sulfur-containing food additives to control major fungal pathogens of stone fruits. *Foods* 10, 2115. <https://doi.org/10.3390/foods10092115>
- Mincuzzi A., Sanzani S.M., Palou L., Ragni M., Ippolito A., 2022. Postharvest rot of pomegranate fruit in Southern Italy: characterization of the main pathogens. *Journal of Fungi* 8, 475. <https://doi.org/10.3390/jof8050475>
- Mincuzzi, A., Picciotti, U., Sanzani, S.M., Garganese, F., Palou, L., Addante, R., Ragni, M., Ippolito, A., 2023. Postharvest Diseases of Pomegranate: Alternative Control Means and a Spiderweb Effect. *Journal of Fungi*, 9(8), p.808. <https://doi.org/10.3390/jof9080808>
- Mincuzzi, A., Ippolito, A., 2023. Pomegranate: Postharvest Fungal Diseases and Control. <https://doi.org/10.5772/intechopen.109665>
- Picciotti, Ugo, Viviane Araujo Dalbon, Aurelio Ciancio, Mariantonietta Colagiero, Giuseppe Cozzi, Luigi De Bellis, Mariella Matilde Finetti-Sialer et al. 2023. "Ectomosphere": Insects and Microorganism Interactions." *Microorganisms* 11, no. 2: 440. <https://doi.org/10.3390/microorganisms11020440>
- Makau, S.M., Moumni, M., Landi, L., Pirozzi, D., Sannino, F. and Romanazzi, G., 2023. In Vitro Evaluation of Chitosan Hydrochloride and COS (Chito-Oligosaccharides)-OGA (Oligo-Galacturonides) on Phytopathogenic Fungi and *Escherichia coli*. *Horticulturae*, 9(12), p.1275. <https://doi.org/10.3390/horticulturae9121275>
- Molina-Hernandez, J.B., Landi, L., De Flaviis, R., Laika, J., Romanazzi, G., Chaves-Lopez, C., 2023. Understanding the mechanisms of action of atmospheric cold plasma towards the mitigation of the stress induced in molds: The case of *Aspergillus chevalieri*. *Innovative Food Science & Emerging Technologies*, 90, p.103492. <https://doi.org/10.1016/j.ifset.2023.103492>
- Rajestary, R., Xylia, P., Chrysargyris, A., Romanazzi, G., Tzortzakis, N., 2022. Preharvest Application of Commercial Products Based on Chitosan, Phosphoric Acid Plus Micronutrients, and Orange Essential Oil on Postharvest Quality and Gray Mold Infections of Strawberry. *International Journal of Molecular Sciences*, 23(24), 15472. <https://doi.org/10.3390/ijms232415472>
- Rajestary, R., Landi, L., Romanazzi, G., 2023. Effects of Commercial Natural Compounds on Postharvest Decay of Strawberry Fruit. *Coatings*, 13(9), p.1515. <https://doi.org/10.3390/coatings13091515>
- Romanazzi G., Orçonneau Y., Moumni M., Davillerd Y., Marchand P.A., 2022. Basic substances, a sustainable tool to complement and eventually replace synthetic pesticides in the management of pre and postharvest diseases: reviewed instructions for users. *Molecules* 27(11), 3484. <https://doi.org/10.3390/molecules27113484>
- Romanazzi, G., Moumni, M., 2022. Chitosan and other edible coatings to extend shelf life, manage postharvest decay, and reduce loss and waste of fresh fruits and vegetables. *Current Opinion in Biotechnology*, 78, 102834. <https://doi.org/10.1016/j.copbio.2022.102834>
- Schiavon, G., Garelo, M., Prencipe, S., Meloni, G. R., Buonsenso, F., Spadaro, D., 2022. Essential Oils Reduce Grey Mould Rot of Apples and Modify the Fruit Microbiome during Postharvest Storage. *Journal of Fungi*, 9(1), 22. <https://doi.org/10.3390/jof9010022>
- Soto-Muñoz, L., Pérez-Gago, M. B., Martínez-Blay, V., Palou, L., 2023. Postharvest Application of Potato Starch Edible Coatings with Sodium Benzoate to Reduce Sour Rot and Preserve Mandarin Fruit Quality. *Coatings*, 13(2), 296. <https://doi.org/10.3390/coatings13020296>
- Toffolatti, S.L., Davillerd, Y., D'Isita, I., Facchinelli, C., Germinara, G.S., Ippolito, A., Khamis, Y., Kowalska, J., Maddalena, G., Marchand, P. and Marciano, D., Mihály K., Mincuzzi A., Mori N., Pincatelli S., Sándor E., Romanazzi G. 2023. Are Basic Substances a Key to Sustainable Pest and Disease Management in Agriculture? An Open Field Perspective. *Plants*, 12(17), p.3152. <https://doi.org/10.3390/plants12173152>
- Vischetti, C., Feliziani, E., Landi, L., De Bernardi, A., Marini, E., Romanazzi, G., 2024. Effectiveness of Four Synthetic Fungicides in the Control of Post-Harvest Gray Mold of Strawberry and Analyses of Residues on Fruit. *Agronomy*, 14(1), p.65. <https://doi.org/10.3390/agronomy14010065>
- Waqas, M., Prencipe, S., Guarnaccia, V., Spadaro, D., 2023. Molecular Characterization and Pathogenicity of *Alternaria* spp. Associated with Black Rot of Sweet Cherries in Italy. *Journal of Fungi*, 9(10), p.992. <https://doi.org/10.3390/jof9100992>
- Xylia, P., Chrysargyris, A., Miltiadou, P., Tzortzakis, N., 2022. *Origanum dubium* (Cypriot Oregano) as a promising sanitizing agent against *Salmonella enterica* and *Listeria monocytogenes* on tomato and cucumber fruits. *Biology*, 11(12), 1772. <https://doi.org/10.3390/biology11121772>
- Xylia, P., Goumenos, C., Tzortzakis, N., Chrysargyris, A., 2023. Application of Lavender and Rosemary Essential Oils (EOs), Their Mixture and Eucalyptol (EOs Main Compound) on Cucumber Fruit Quality Attributes and Microbial Load. *Agronomy*, 13(10), p.2493. <https://doi.org/10.3390/agronomy13102493>

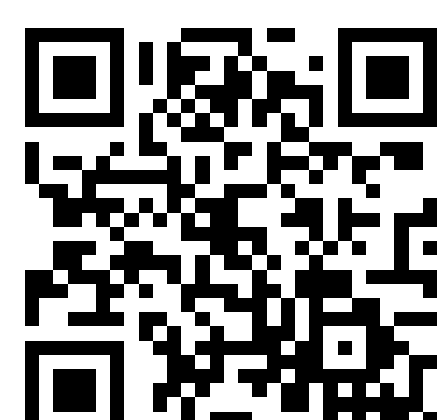
Work packages



Benefits

The benefits that will result from the completion of the StopMedWaste project include:

- The improvement of the efficacy and efficiency of processing and storage of fresh produce, resulting in food products with longer shelf-lives and greater microbial stability
- The improvement of the food-chain sustainability, using alternative agrofood processes or tools that are focused mainly on meat and vegetable production
- The optimization of food storage and distribution logistics (local and transnational levels), which will result in higher incomes for small holders/ SMEs
- The reduction of fresh produce losses and possible income increase for growers
- The production of high quality (free of synthetic fungicides residues) fresh produce (fruit, vegetables and aromatic plants) supplied to food-chain operators, retailers and consumers
- The support of the decision-makers (i.e. growers, food-chain operators, stakeholders and consumers) through the dissemination of the project's outcomes



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