LEARNING RESILIENCE FROM RESURRECTION PLANTS – A BOTANICAL, LITERARY AND PSYCHOLOGICAL APPROACH TO POEMS FROM AMERICAN, AUSTRALIAN AND GERMAN LITERATURE

Raluca Ștefania PELIN[1], Cristina SLABU [1]

e-mail: raluca.pelin@iuls.ro

Abstract

The concept of resilience is constantly making the headlines with regard to every aspect of life spanning from the environmental and economic areas to the fundamentally social and personal spheres of our existence. It becomes even more striking when it is represented by plants, the Resurrection plants, and becomes the core muse for poetry – the public artistic manifestation of the inner workings of the hearts and minds of people pondering on relationships and life issues. The present study aims at pinpointing the essential traits of these plants from the botanical perspective, reflected in several American, Australian and German poems and echoing in the much desired emotional intelligence competences that people need to acquire nowadays. The conclusion that can be drawn is that the environment plays a crucial role both in ensuring the survival conditions of plants and humans as well as in facilitating the acquisition of essential adaptive mechanisms and the mastery of resilience which culminates in the preservation of life and hope.

Keywords: Resurrection plants, plant poems, resilience, adaptive mechanisms, emotional intelligence competences

In all spheres of life there has been a constant emphasis on the concept of resilience and the necessity of acquiring and enhancing this competence as a desirable strategy for survival. The American Psychological Association (APA) defines resilience as "The process and outcome of successfully adapting to difficult or challenging life experiences, especially through mental, emotional, and behavioral flexibility and adjustment to external and internal demands." Furthermore, among the factors mentioned by the association as contributors to the good adaptation to adversities, the most notable are: "the availability and quality of social resources" and the "specific coping strategies" (APA, 2022, https://www.apa.org/topics/resilience), factors that hold true with regard to the world of plants as well.

Advocating a return to nature means recognizing that people need to develop an actively nourished awareness of the traits the natural world possesses and of the lessons we can extract from observing these traits. All things in nature have been designed with an amazing internal capacity to withstand adversity and regenerate. There is a strong connection between the background of one's existence and the fostering of resilience both in the case of people and plants. For humans, the background is represented by the social connections and the cultural context, supplied by the internal resources that have been nurtured over time, such as self-awareness, self-esteem and self-efficacy. On the other hand, the background factors that influence the resilience and adaptive mechanisms of plants comprise soil, the availability of water and nutrients as well as the proximity to other plants.

A paradox in the world of plants is the existence of the so-called Resurrection plants, which seem to furnish relevant lessons for survival and arouse hope regarding the continuation of life. Pondering on the death of plants with a keener consideration of the Australian poet John Kinsella's work, John C. Ryan highlights "the uncanny aptitude" of Resurrection plants, which represent "a small grouping of species that occur globally and can survive complete desiccation", to resume "normal physiological function when rehydrated", being thus able "to return from the brink of ordinarily death-dealing conditions, specifically drought and dehydration" (Ryan. J. C., 2016). Although the precise mechanism of reverting the metabolic arrest is still a mystery, "a subset of resurrection plants, characterized as poikilochlorophyllous" make use of "protein-mediated biochemical pathways to disassemble their chloroplasts and degrade their chlorophyll, which are then resynthesized during rewetting" (Ryan. J. C., 2016). Belonging to this subset is the particular plant called the Rose of Jericho which

[1] "Ion Ionescu de la Brad" University of Life Sciences, Iași, Romania

"retains its singular property of expansion by the absorption of water, and of contraction when dried for a long course of years" (Millar J. M. D., 1821). While there are many stories and superstitions connected to the Rose of Jericho, this particular plant was also distinguished "in later botanical works" by the name "Anastatica, derived from its property of reviving in water" (Millar J. M. D., 1821). While the true Rose of Jericho "scientifically known as Anastatic hierochuntica, is a desert plant native to the Middle East near the Dead Sea in Israel" (Jericho R.O., 2023) and "the only species of the genus Anastatica of the mustard family (Brassicaceae)" (Britannica Editors, 1998), the "false rose of Jericho or resurrection fern (Selaginella lepidophylla), is native to the Chihuahuan Desert of the United States and Mexico and is a member of the spike moss family (Selaginellaceae)" (Britannica Editors, 1998). Another Resurrection plant native to Western Australia is "the pincushion lily (Borya nitida)" (Ryan. J. C., 2016) around which Kinsella's poem *Resurrection Plants at Nookaminnie Rock* is woven. What unites these plants is their "courting death by paring down—then resuscitating—physiological processes in correspondence to fluctuating ecological circumstances" (Ryan. J. C., 2016). J. C. Ryan goes as far as to see in plant-death the "immanent, embodied expression of vegetative ensoulment" and - meditating on the Aristotelian entelechy - he asserts that "The latent potential for aliveness inheres within the potential for death, and the reverse is true." (Ryan. J. C., 2016).

The vivid awareness of the natural cycles plants follow and the biogenic or anthropogenic factors that may intervene have found expression in the works of many authors that may or may not have been native to the areas where these plants grow. In this study we are considering the works of the American poets: Harriet McEwen Kimball and Mollie Evelyn Moore Davis (both of them living through most of the 19th century), as well as those of Laura Sobbott Ross and Cindy Veach (contemporary poets). For a diverse perspective, John Kinsella's poem from the contemporary Australian background and Ferdinand Brunold's work from the German area (19th century) have been selected. The choice of these poems is grounded in the potential of Resurrection plants – either the true or the false Rose of Jericho, or the pincushion lily native to Australia – to bring to light the physical traits and the physiological characteristics of these plants masterfully depictive of the psychological competences humans should strive to master.

MATERIAL AND METHOD

In this study we approached six poems from the botanical, literary and psychological perspective in order to see how poets have perceived the specific plants and have highlighted the traits of the plant that are revelatory with regard to the psychological lessons one can infer. The purpose was to see whether the poems preserve the keenness of the scientific description of the traits and the life cycles of these plants.

The two poems from the 19th century depict either the Rose of Jericho – in Harriet McEwen Kimball's poem – and most likely "the resurrection moss, S. lepidophylla inhabiting the southern United States as a tumbleweed" (Ryan J. C., 2017) in Mollie Evelyn Moore Davis's poem. What these two poems have in common is the religious reverence with which the two plants are perceived and described and the eternal lessons inscribed in their particularly surprising life cycles. Harriet McEwen Kimball's poem contextualizes the plant in Joseph's and Mary's times when they fled to Egypt in order to preserve the life of baby Jesus:

"As through the desert wild they went
By angels led and undismayed,
A flower sprang up of sweetest scent
Where'er the Virgin's steps were stayed.

'T is fabled that this flower since then
Blooms only on some feast-day high,
And chiefly when comes round again
The Feast of Christ's Nativity."

The thoughts of the poet revolve only in the transcendental realm of meaning and her verses hint directly at the lesson one can learn from the Rose of Jericho:

"*When through life's desert places led*
By holy angels unaware,
Intent on mercy's deeds you tread
And make God's needy ones your care,

If in your arms the Christ Child dear
You carry wheresoe'er you go,
In every place earth's wilds to cheer
Will spring the Rose of Jericho."

(Kimball H. M., *The Rose of Jericho*)

The reader discovers thus that the Rose of Jericho thrives even in desert places, which turns resilience into a core symbol. The imagery created is that of the dry tumbleweed that may travel driven by the wind in a state of closely intertwined branches which may resemble human arms holding closely something precious in this constrained embrace.

Mollie Evelyn Moore Davis's poem *The Resurrection Plant* accurately describes the Resurrection plant in its state of life arrest: *"The useless thing was cast aside/ A mesh of black and withered roots"* which had nothing that promised beauty of life: *"The unsightly thing/ Lay rotting in the garden there"* (Moore M. E., 1872). The poet sees the human intervention as a rescuing force:

"Till one with youth upon her lips
And golden ripples in her hair,

Outspread it in a crystal dish
And showered pure water on its breast,
And placed it where the blossoms bloomed;
When lo! this plant outshone the rest!

The wonder of the resurrection of the dead plant is accompanied by a fair description of its traits when revived:

"Dainty and daintier emerald leaves
That all their crystal prison spanned,
And still more emerald heart that glowed!
The fairest thing in all the land!"

The lesson the poet offers brims with hope for those who may be experiencing a forlorn, desperate state of lifelessness, and names precisely the reviving factor of such plants which is water:

"Therefore, oh fainting hearts, take heart,
For God is patient: He can wait
The budding and the leafing-time;
He never cries "Unclean! Too late!"
…
I think He dips His pitying hand
In that fair River's waves, that flows
Fast by His Throne, upon whose banks
The never-fading Lily grows…" (Moore M. E., 1872)

The contemporary poets Laura Sobbott Ross and Cindy Veach move the focus on these plants as gifts that carry a certain deep meaning. Ross's poem unveils the poet's wonder at being offered a plant that possesses a rather uncomely aspect:

"Frills so startled by the atmosphere,
they faint, go brown with introspection.
Verdant sounds like a crushed succulence—
humid and emerald, not like these
ferns he's unstitched from hundred-year-old
live oaks whisper chipped into submission.
…
What makes a living thing mutate its genes
so it could appear dead for a hundred years
and revive after a single soaking?" (Ross L. S., 2012)

The rhetorical question on which the poet ponders invites researches to unveil the mystery behind the resurrection power of this plant which possesses a "persistent green heart" (Ross L.S., 2012) highlighting the existence of life in death, the hope of revival and the unexpected transition from being "brown with introspection" to "verdant", emerald succulence.

Cindy Veach's poem is even more rooted in the reality of our days: *"I'm not sure about this gift. This tangle/ of dried roots curled into a fist. This gnarl/ I've let sit for weeks beside the toaster/ and cookbooks on a bed of speckled granite."* (Veach C., 2003) Projected on a very domestic background, this plant sends the poet wondering about its miraculous effects praised by many but which she refuses to acknowledge, testifying that she doesn't believe in omens. The deprecatory description of the plant adds to the little if any significance that she is ready to attach to it: *"This still fist/ of possibility all wrapped up in itself.", "Dormant."* However, an inch of water sprinkled on it *"out of curiosity"* is meant to stir the surprise of a soul dormant in disbelief. What follows is a description of the stages in which this plant comes to life as well as of the poet's refusal to attach any deeper, religious interpretation to this form of resurrection:

"out of curiosity, I awakened
the soul of Jericho. Limb by limb it unfolded

and turned moss green. It reminded me
of the northwest, its lush undergrowth,

how twice despite the leaden clouds,
the rain, I found happiness there.

From tumbleweed to lush fern flower,
reversible, repeatable." (Veach C., 2003)

Surprising is the manner in which the poet has conceived her verses in couplets. These are pierced by punctuation marks which obstruct the flow of a poem that lacks the expected fluidity usually given by rhyming verses. This braking rhythm may be suggestive of the short, unexpected phases involved in awakening the life that has been arrested in this plant for a rather long time. The whole imagery of the poem seems to be constructed like a puzzle under the confused eyes of a reader who is unable to anticipate what will follow or where each piece will fit. The choice of words – "reversible" and "repeatable" – shows that behind a lack of faith in the revival of a dead organism there lies the unequivocal evidence of life in death which brings the poet to an ecological commitment to sustain life.

The contemporary Australian poet John Kinsella brings the topic of Resurrection plants into the knowledgeable sphere of a fervent supporter of indigenous treasures. His poem *Resurrection Plants at Nookaminnie Rock* flows like a narrative sparingly interrupted by punctuation marks which summon the readers to pauses of reflection:

"They're full-blown in their early spring
rush – pin cushions a fakir's bed of nails
so soft to tread on, so easy to make false
comparisons by, and all the baggage that carries –
rest-break on a granite slab looking out over
the island sea of scrub shaded with formations
beneath a green lagoon's surface. It's what we
bring to the apogee before the drying-off,
dead crunch beneath our feet as rock-
dragons wake to the heat, and emphatic

belief that the dead will stay dead
and there will be no lift, no rebirth,
wherever you come from, whatever
you believe. Step carefully around these
wreaths hooked into granite sheen,
holdalls
for a soil-less ecology, a carpet you know
would say so much more if your boots
were off and skin touched life brought
back, restored, gifted, bristling with death
because death is the most alive district
to inhabit. We could say so much more
if only we had the time." (Kinsella J., 2013)

The flow of the description of these plants and their environment is arrested by a profound thought that awakens the reader from any dormant slumber of faith: *"emphatic/ belief that the dead will stay dead/ and there will be no lift, no rebirth,/ wherever you come from, whatever/ you believe".* The solution is offered at the end of the poem: *"life brought/ back, restored, gifted, bristling with death/ because death is the most alive district/ to inhabit".*

John Oxenford's translation of the German poem written by Ferdinand Brunold (19th century) brings into the limelight two exceptionally powerful images – that of an old man on the brink of death intertwined with that of a Rose of Jericho from the Holy Land:

"His hands are dry and wither'd; a single rose they bear –
A rose that long has faded,-upon it falls the tear.
Yet o'er those pallid features a smile of pleasure creeps;
Unwillingly and slowly, thus speak his aged lips:— "

He holds in his old hands - which closely resemble the dry leaves of the Resurrection plant - a Rose of Jericho given to him by a lady as a token of truth, love, and of the enduring promise to meet again. Approaching his own death, the man does a last promised gesture of throwing the dry rose into wine:

"Behold! the wine is sparkling-the rose a perfume gives.
And more and more expanded are swelling forth its leaves.
Fix'd on the rose and goblet the old man's eye is gleaming
It is hope's joyous lustre that in his eye is beaming.

And fuller, ever fuller, the fragant rose-leaves blow;
And gladder, and still gladder, the old man's features glow." (Oxenford J., 1842)

The revival of the dead plant under his weary eyes is a reassuring promise of a life beyond death in a realm where all things shall be made new.

RESULTS AND DISCUSSIONS

Approaching various poems from different geographical areas and two distinct historical time spans from a botanical, psychological and literary perspective reveals two different modes of perception. The romantic inclination toward sublime images and feelings of the 19th century poets: Harriet McEwen Kimball, Mollie Evelyn Moore Davis and Ferdinand Brunold masterfully translated by John Oxenford, testify to a heartbeat-like rhythm - loosely iambic - given by the flow of the rhyming verses (either embraced or paired in couplets) which abound in deep thinking and longing for true hope and love. This perspective is counterbalanced by the contemporary writers: Laura Sobbott Ross, Cindy Veach and John Kinsella, whose poems take the forms of narratives in blank verse which render the train of thoughts either in flowing verses or lines sharply interrupted by punctuation marks. These contemporary poets offer a perspective deeply rooted in the actuality of things – or even human relations – approaching an ecological decay that human beings alone are called to withstand and if possible to revert, just like the Resurrection plants hold in them the power to be restored to life in the right environment.

Psychologists agree on the fact that resilience is acquired by being faced with "aversive circumstances" even from a young age and that learning to process emotions in various contexts leads to improvements in social competence, resilience and adaptation (Bar-On *et al.,* 2007). Whenever situational backgrounds highjack our amygdala which will determine our reactions and actions, the key to resilience "lies in how quickly we recover from that hijacked state" (Review, Goleman, Langer, *et al.,* 2017), and this competence of recovery is trained in the harshest environment by resorting to inner resources and a discourse that connects words to reality and hope.

Adaptive Mechanisms: Anabiosis and Metabolic Suspension in Resurrection Plants

A central physiological strategy employed by resurrection plants is anabiosis, defined as the reversible suspension of metabolic activity in response to extreme desiccation. During this phase, cellular processes are drastically reduced or halted, enabling the plant to persist in a dormant state for extended periods. This condition is characterized by the retention of structural integrity despite the near absence of water (Costa *et al.,* 2017). Importantly, anabiosis is not a passive state; it involves active regulation of gene expression, membrane stabilization, and the accumulation of

protective molecules that mitigate irreversible damage.

Building upon the concept of anabiosis, another key mechanism supporting survival under desiccation is the preservation of the photosynthetic apparatus – a strategy known as homoiochlorophylly. Unlike poikilochlorophyllous species, which degrade chlorophyll and reconstruct photosynthetic structures upon rehydration, homoiochlorophyllous plants maintain thylakoid integrity and pigment stability, allowing for rapid resumption of photosynthesis.

Although effective, homoiochlorophylly increases the risk of reactive oxygen species (ROS) formation, necessitating the simultaneous activation of complex antioxidant defenses. In parallel, Costa *et al.* (2017) proposed that resurrection plants re-engage genetic programs analogous to those found in orthodox seeds, where desiccation tolerance is an ancestral trait.

Protective Compounds and Antioxidant Systems

Following the preservation of the photosynthetic machinery, the survival of resurrection plants under extreme drought conditions depends on the accumulation of protective compounds that stabilize cellular structures and mitigate oxidative damage. Among the most critical are soluble sugars (glucose, fructose, trehalose, sucrose), which act as vitrifying agents, forming an amorphous matrix that shields proteins and membranes in the absence of water (Hoekstra *et al.,* 2001; Oliver *et al.,* 2000). Proline, an osmoprotective amino acid, is also intensely accumulated during dehydration, aiding in the maintenance of osmotic potential and protecting enzymes from denaturation (Smirnoff & Cumbes, 1989). In addition to these compounds, resurrection plants activate a broad spectrum of antioxidants which neutralize free radicals generated during desiccation and rehydration (Kranner *et al.,* 2002; Farrant & Moore, 2011). These biochemical systems are essential for preventing oxidative stress and preserving cellular viability.

Collectively, the accumulation of protective compounds and the activation of antioxidant defenses reflect a highly coordinated metabolic strategy that enables resurrection plants to endure prolonged desiccation and resume physiological function upon rehydration.

Antioxidant Enzymes

During dehydration and subsequent rehydration, resurrection plants are exposed to elevated levels of oxidative stress due to the formation of reactive oxygen species (ROS), which can damage proteins, lipids, and nucleic acids. To mitigate these effects, they activate a complex antioxidant defense system composed of key enzymes essential for maintaining cellular integrity. Kranner *et al.,* (2002) conducted a comparative analysis across multiple resurrection species, showing that antioxidant system efficiency is closely linked to the rate of rehydration and the restoration of photosynthetic function. Furthermore, Farrant and Moore (2011) emphasized that these enzymes operate synergistically with non-enzymatic antioxidants such as reduced glutathione and ascorbic acid, forming a tightly regulated redox network.

Thus, the activation of antioxidant enzymes constitutes a fundamental component of desiccation tolerance, enabling resurrection plants to withstand extreme environmental stress without incurring irreversible cellular damage.

Symbiosis and Rhizospheric Interactions

In addition to intrinsic physiological adaptations, resurrection plants benefit from symbiotic interactions with drought-adapted microorganisms in the rhizosphere. These microbial communities contribute to plant resilience by inducing systemic resistance, synthesizing phytohormones, and enhancing nutrient acquisition (Lozo *et al.,* 2023). Furthermore, these microorganisms produce indole-3-acetic acid (IAA) and salicylic acid, which regulate hormonal balance and stress responses under drought conditions (Vurukonda *et al.,* 2016). Collectively, the rhizosphere functions as an auxiliary ecological system, supporting metabolic reactivation and contributing to the long-term survival and ecological stability of resurrection plants in arid and extreme environments.

CONCLUSIONS

A targeted approach of the world of plants through the eyes of poets and scientists can open the path of discovering deeper meaning regarding life, its end and the possibility of life emerging when hope fades. John C. Ryan's conclusion regarding Kinsella's poetic subtexts and the power of his poem *Resurrection plants at Nookaminnie Rock* to textualize "vegetal death and near-death, principally, as a process of embodied, ecological Jericho marvel and, secondly, as suggestive of the possibility of ecosystemic renewal" (Ryan J. C., 2016) is a herald of hope that needs to be sustained through active engagement with a nature that generously offers life lessons to humans. The

adaptive mechanisms and the activation of resilience in times of lack of abundant resources can be learned from nature and may lead to the renewal of the hope that life does not cease with death.

The lessons the Resurrection plants offer are inscribed in their very structure and resilience mechanisms. When the contexts of life become adverse, the organism should stabilize and accumulate protective sources so that it may withstand any life threatening conditions. The anabiosis may outwardly appear as passive while it is actually an active inner regulation of emotions and activation of protective mechanisms and responses. In this state people may be selective as to the sources they may resort to in order to maintain stability, hope and life. In the apparent state of demise resilience is forged through storing inner strength and accumulating resources that will help neutralize further damaging stimuli. By retaining the structural integrity and stability, a resilient person will enhance the acquisition of the proper psychological nourishment needed for survival and further living.

While the poems approached in this study offered a slightly romanticized perspective on Resurrection plants which carry the promise of the revival of deep feelings such as love and of the body after death, the botanical insights testify to the fact that living organisms hold in themselves the potential for resilience and of a full restoration to life after temporary life arrest.

REFERENCES

APA, **2022 -** https://www.apa.org/topics/resilience

Bar-On, R., Maree, K., & Elias, M. J., 2007 - *Educating people to be emotionally intelligent*. In Praeger eBooks. https://doi.org/10.5040/9798400643897

Britannica Editors, 1998 - *Rose of Jericho | Definition, Plant, Types, & Facts*. Encyclopedia Britannica, available on-line at: https://www.britannica.com/plant/rose-of-Jericho

Costa, M.-C., Cooper, K., Hilhorst, H. W. M., & Farrant, J. M. , 2017 - *Orthodox seeds and resurrection plants: Two of a kind?* Plant Physiology, 175(2), 589–599. https://doi.org/10.1104/pp.17.01011

Farrant, J. M., & Moore, J. P., 2011 - *Programming desiccation-tolerance: From plants to seeds to resurrection.* Plant Science, 180(3), 322–331. https://doi.org/10.1016/j.plantsci.2010.11.014

Hoekstra, F. A., Golovina, E. A., & Buitink, J., 2001 - *Mechanisms of plant desiccation tolerance*. Trends in Plant Science, 6(9), 431–438. https://doi.org/10.1016/S1360-1385(01)02052-0

Jericho, R. O., 2023 - *The origin of the true Real Rose of Jericho*. Rose of Jericho, available on-line at: https://jericho-rose.org/the-origin-of-the-true-real-rose-of-jericho/

Kimball, H. McEwen - *The Rose of Jericho*. https://www.poetrynook.com/poem/rose-jericho

Kinsella, J., 2013 - *Poem* | John Kinsella - Overland literary journal. Overland Literary Journal, available on-line at: https://overland.org.au/previous-issues/issue-199/poem-john-kinsella-2/

Kranner, I., Beckett, R. P., Wornik, S., Zorn, M., & Pfeifhofer, H. W., 2002 - *Revival of a resurrection plant correlates with its antioxidant status*. The Plant Journal, 31(3), 403–415. https://doi.org/10.1046/j.1365-313x.2002.01329.x

Lozo, J., Ristović, N., Kungulovski, G., Jovanović, Ž., Rakić, T., Stanković, S., & Radović, S., 2023 - *Rhizosphere microbiomes of resurrection plants Ramonda serbica and R. nathaliae: Comparative analysis and search for bacteria mitigating drought stress in wheat* (*Triticum aestivum* L.). World Journal of Microbiology and Biotechnology, 39, 256. https://doi.org/10.1007/s11274-023-03702-4

Millar, James M.D., 1821 - *LXXV. Observations and experiments on the Rose of Jericho; with brief notices of its history*. Philosophical Magazine Series 1, 58:283, 360-363, DOI: 10.1080/14786442108652640

Moore, M. E., 1872 - *Poems.* Houston, Texas: E. H. Cushing.

Oliver, M. J., Tuba, Z., & Mishler, B. D., 2000 - *The evolution of vegetative desiccation tolerance in land plants.* Plant Ecology, 151(1), 85–100. https://doi.org/10.1023/A:1026556109680

Oxenford, J., 1842 - *The Mirror of literature, amusement, and instruction*, Nov. 1822-June 1847; London Vol. 2, Iss. 3, pp. 45-46.

Review, H. B., Goleman, D., Langer, E., David, S., & Congleton, C., 2017 - *Mindfulness* (HBR Emotional Intelligence Series). Harvard Business Press.

Ross, Laura Sobbott, 2012 - *He brings me resurrection Ferns* - Deep South magazine. https://deepsouthmag.com/2012/02/14/he-brings-me-resurrection-ferns/

Ryan, J. C., 2017 - *A comparative history of resurrection plants*. CLCWeb Comparative Literature and Culture, 19(2). https://doi.org/10.7771/1481-4374.3010

Ryan, J. C., 2016 - *On the Death of Plants: John Kinsella's Radical Pastoralism and the Weight of Botanical Melancholia // Sobre la muerte de las plantas: El pastoreo radical de John Kinsella y el peso de la melancolía botánica*. Ecozon European Journal of Literature Culture and Environment, 7(2), 113–133. https://doi.org/10.37536/ecozona.2016.7.2.1004

Smirnoff, N., & Cumbes, Q. J., 1989 - *Hydroxyl radical scavenging activity of compatible solutes*. Phytochemistry, 28(4), 1057–1060. https://doi.org/10.1016/S0031-9422(00)95294-3

Veach, C., 2003 - *Rose of Jericho*. Poets.org. https://poets.org/poem/rosejericho#:~:text=Add%20to%20anthology,the%20Academy%20of%20American%20Poets

Vurukonda, S. S. K. P., Vardharajula, S., Shrivastava, M., & SkZ, A., 2016 - Enhancement of drought stress tolerance in crops by plant growth promoting rhizobacteria. *Microbiological Research*, 184, 13–24. https://doi.org/10.1016/j.micres.2015.12.003