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## Cotyledon and testa

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The website has various sections, such as Help desk, Reference desk, and Teahouse, which provide information and assistance to users. Wikipedia also hosts several sister projects, including Commons, Wikibooks, and Wikidata. The year 14.526 began on a Tuesday according to the Julian calendar. Key events include King Henry VI summoning the Parliament of England and directing its members to meet in Leicester on February 18. The Battle of Brouwershaven took place between the Burgundian State and the troops led by Jacqueline, Countess of Hainaut, resulting in a Burgundian victory. The year also saw England declare war against the Duchy of Brittany and the Kingdom of France after Jean le Sage, Duke of Brittany, allied with King Charles VI of France. The Xuande Era began in Ming dynasty China as the first Lunar New Year of Emperor Xuanzong's reign. In February, the English Parliament was opened by King Henry VI at Leicester, and Richard Vernon was elected as its speaker. The Hundred Years' War saw the Siege of St. James begin in Normandy, France, as Sir Thomas Rempston led an English army against a force of 16,000 French and British troops. March witnessed the Battle of St. James, where an English army under John, Duke of Bedford, defeated the French under Arthur de Richemont, forcing the Duke of Brittany to recognize English suzerainty. The Second Scutari War between the Republic of Venice and the Serbian Despotate was formally ended with a treaty signed at Vushtrri in Albania. April saw the death of Hasan ibn Ajlan on his way back to Mecca, and his sons Barakat ibn Hasan and Ibrahim ibn Hasan were summoned by the Egyptian Mamluk Sultan Al-Ashraf Sayf ad-Din Barsbay to complete payment for the remaining 25,000 dinars owed. In May, Kali Kye-Taung Nyo fled his capital in Burma, leading Mohnvin Thado to succeed him and receive Thinkhaya III of Toungoo. The Parliament of Bats closed in England, with King Henry VI giving royal assent to various laws, including a provision against wrats and lawsuits abating when someone is later given knighthood. June saw the Battle of Aussig, where the Hussites decisively beat the crusading armies of Germany, and then annihilated the town of Aussig. The month also witnessed King Janus of Cyprus being defeated and captured by the Mamluks and brought to Egypt, only to be ransomed after ten months. In August, Barakat ibn Hasan was confirmed as the new Emir of Mecca by the Egyptian Sultan Barsbay, conditional on paying off the remaining 25,000 dinars owed. September saw Barakat ibn Hasan officially assume the powers of the Emir of Mecca after taking back over from his brother Abu al-Qasim. Finally, October witnessed the Uckermark War. In 1476, Elector Friedrich and his son Johann "the alchemist" signed a treaty with William of Werle, ruler of Mecklenburg. The same year, Vietnamese rebels led by General Nguyễn Xi defeated a large Chinese force in Vietnam, marking a significant victory for the Vietnamese. In Venice, a peace treaty was signed between the Republic of Venice and the Duchy of Milan, led by Doge Francesco Foscari and Duke Filippo Maria Visconti respectively. The treaty required Milan to give up control of Brescia and Vercelli but regained control of Liguria. In Italy, the Orsini family built Castello Orsini-Odescalchi in Bracciano. Eunuchs dominated the secret police and imperial workshops, infiltrating the civil service and foreign missions in China. Other notable events include the birth or death of several historical figures, such as Eleanor of Navarre, Christian of Oldenburg, Anne Neville, Maria of Cleves, Johanna IV Roth, Thomas Hoccleve, Kali Kye-Taung Nyo, Hubert van Eyck, Elizabeth of Lancaster, Pippo Spano, and Thomas Beaufort. The year also saw the death of Tezozomoc, the Tepaneca ruler of Azcapotzalco. The Timurid Empire was established by Tamerlane, who became known as one of history's greatest conquerors. He is estimated to have caused the deaths of around 17 million people during his military campaigns, which would have been approximately 5% of the world's population at that time. The Timurid Renaissance emerged during this period, with significant contributions from scholars such as Ibn Khaldun and explorer Ibn Battuta. In India, the Bengal Sultanate separated from the Delhi Sultanate, becoming a major trading nation in the world. The Europeans described it as the richest country to trade with. In Africa, the Mali Empire reached its peak under Mansa Musa I, who was considered the wealthiest individual of medieval times and perhaps the wealthiest ever. The 14th century saw significant events such as the Black Death, which claimed 25 million lives in Europe, wiping out one-third of the population. The Hundred Years' War between the Kingdom of England and the Kingdom of France also took place during this period. In Asia, Tamerlane established the Timurid Empire, while in the Americas, the Mexica founded the city of Tenochtitlan. The 14th century was a pivotal time in world history marked by significant events such as famines, wars, and establishment of new kingdoms. In Europe, the Little Ice Age led to cooling temperatures causing shortened growing seasons and reduced crop yields resulting in widespread famines. The period also saw the rise of major conflicts like the Hundred Years' War between England and France. In Asia, the Avignon papacy transferred the seat of the Popes from Italy to France during 1309-1377. This marked a significant shift in global power dynamics. The Great Famine of 1315-1317 had devastating effects on European populations, while the Black Death killed around a third of Europe's population between 1347 and 1351. Notable events took place in Southeast Asia during this time period as well. Tribhuvana Wijayatunggadewi succeeded Jayanegara as ruler of Majapahit in 1328, while Wang Dayuan traveled extensively throughout the region documenting various places he visited. The Vijayanagara Empire was founded in South India by Harihara I in 1336. The Mongol Empire's disintegration in Persia following the death of Ilkhan Abu Said in 1335 led to power struggles among its successor states. In Japan, the Kemmu Restoration under Emperor Go-Daigo began after the Genkō War deposed the Kamakura Shogunate between 1331 and 1333. In other parts of the world, Mattiussi, an Italian Franciscan friar, recorded his observations on the kingdom of Majapahit during a visit to Sumatra, Java, and Banjarmasin in Borneo. Wladyslaw I the Elbow-high was crowned King of Poland, leading to its later unification, while Dante Alighieri published his Divine Comedy. The period also saw the rise of new kingdoms such as the Ayutthaya Kingdom established by Ramathibodi I in 1350 and the establishment of the Kingdom of Malacca by Adityawarman in 1347. Stylishly named Sri Rajasanaagara succeeded Tribhuvana Wijayatunggadewi as the ruler of Majapahit during its "Golden Age". Meanwhile, under Gajah Mada's military command, Majapahit expanded to cover much of present-day Indonesia. In 1351, the Red Turban Rebellions began along the Huai River valley, sparking nearly two decades of uprisings against the Mongol-led Yuan dynasty in China. In 1353, Fa Ngum established the Lan Xang kingdom in Laos. Also during this period, European powers were busy shaping their own destinies: The Imperial Diet of the Holy Roman Empire issued the Golden Bull of 1356, establishing constitutional aspects and an electoral college; while the Hansas convened its Diet in Lübeck to formalize a loose alliance of trading cities. Scotland secured its independence with the Treaty of Berwick, ending the Wars of Scottish Independence. On the Indian subcontinent, Sundanese royalty was massacred by Majapahit forces, led by Gajah Mada, while on the other side of the world, the Battle of Lake Poyang raged between Chinese rebel groups. In 1365, the Old Javanese text Nagarakertagama was written. In Asia, the end of the Mongol-led Yuan dynasty marked the beginning of the Ming dynasty in China, while in Europe, the Great Schism of the West split the Catholic Church and the Ciompi Revolt shook Florence. Throughout Spain and Portugal, Jewish communities were decimated, with thousands massacred. Meanwhile, Taejo of Joseon established the Joseon Dynasty in Korea, while Japan's Emperor Go-Kameyama abdicated to end a period of conflict between rival imperial courts. The Ottoman Empire triumphed over Crusader forces at Nicopolis and captured Vidin, marking the end of the Second Bulgarian Empire. In Europe, the Kalmar Union united Norway, Sweden, and Denmark under one rule, while Tenochtitlan's Chimalpopoca began his reign as its third ruler. China saw the Jingnan campaign launched by Zhu Di against his nephew, the Jianwen Emperor, initiating a transition from the Medieval Warm Period to the Little Ice Age. The poet Petrarch coined the term "Dark Ages" to describe Europe's preceding centuries of decline, and the Ottoman Empire began its expansion into the Balkans. In Iran, the Iwan vault of Jame Mosque in Isfahan was built, while Kao Ning's painting "Monk Sewing" is attributed from the early 14th century. The story of Buddha's life became a popular tale among Christians, and Singapore emerged as an important trading center on the Malay Peninsula. Given article text here. Seeds hold potential for growth into mature plants, containing embryonic root systems, shoots, and leaves in their tiny structures. The outer coat of a seed, called the testa, protects it from external threats but must be broken open by the growing root to initiate germination. The micropyle allows water entry into the embryo before active germination can begin. The radicle grows out as the embryonic root, while the plumule emerges as the shoot with two or more leaves and a growing point enclosed between them. In most cases, seeds have two cotyledons - leaf-like structures attached to the plumule and radicle by short stalks, which store food used during early germination. The structure of different seed types can be visualized through drawings, showcasing notable differences like wheat having only one cotyledon and an additional food reserve called the endosperm. Seeds need a supply of water and oxygen for germination to begin; the temperature must also meet the specific requirements for each species. For some plants, light is necessary for photosynthesis once the seedling emerges from the ground. However, many seeds can remain dormant in dry conditions, retaining their ability to germinate after long periods without water or nutrients, utilizing only about 10% of its weight as water while in this state. Seeds can be shown to consume oxygen and release carbon dioxide while being dormant, and under proper storage conditions, wheat seeds can still germinate after approximately 15 years. However, the percentage of seeds that will germinate decreases as they remain dormant for a longer period. This phenomenon is explored in detail in Biology Experiment 1: Germination.