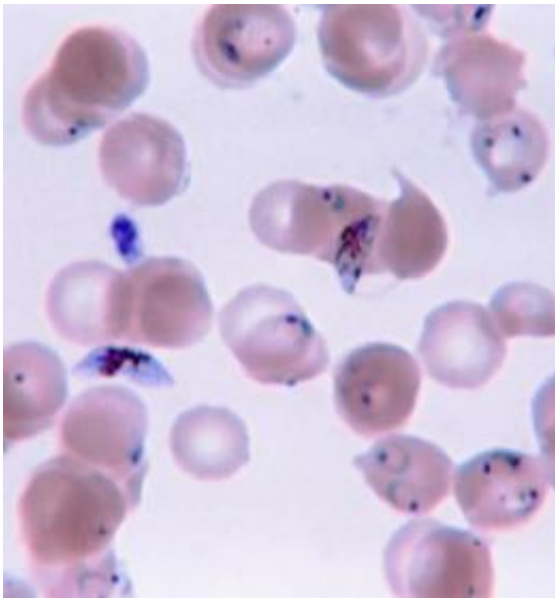


Researchers trace origins of malaria parasite from African slave trade to South America

December 27 2011, by Bob Yirka



A thin-film Giemsa stained micrograph of ring-forms, and gametocytes of *Plasmodium falciparum*. Image: CDC

(PhysOrg.com) -- A new study done using DNA analysis and partly undertaken by the University of California, Irvine, has found evidence to support the premise that malaria was brought to South America via the African slave trade in the sixteenth century, rather than much earlier as some have suggested. The results of the study, led by evolutionary biologist Francisco Ayala, are to be published in the *Proceedings of the National Academy of Sciences*, show that the malaria parasite apparently had two sites of introduction, one in the northern part of South America

and another in the south.

For many years there has been much debate about just how long ago malaria was introduced to South [American populations](#). Were it to have been thousands of years ago, as some have theorized, the parasite would have had to travel over the Atlantic Ocean by bird or perhaps carried aloft, embedded in [dust particles](#). With this new research however, such theories are likely to be put to rest.

To trace the roots of the malaria parasite in South America, Ayala and his colleagues collected samples of blood from people that had been infected with the protozoan from seventeen countries in South America, the Middle East, Africa and Southeast Asia. As each sample was gathered, [DNA analysis](#) was undertaken, comparing known stretches from each sample with all of the others collected. The team then performed mosquito generational estimates to come up with an approximation of how many years prior the malaria parasite must have first appeared in South American people.

Because of the inexactness of deriving estimates, the team calculated both high and low estimates based on either 12 or 6 mosquito generations per year. For the former, the team estimated that malaria arrived on the shores of South America some 217 to 495 years ago. For the later, it came to somewhere between 434 and 900 years ago.

In one area of first introduction, which appears to have occurred in a northern part of the continent; via Mexico perhaps, or in Columbia, the time estimates calculated overlap the time period during which Spanish slave traders were operating in those areas. Likewise, the second area of introduction appears to overlap with the time frame consistent with Portuguese slave traders operating in what is now Brazil.

Thus, the team concludes, it appears highly likely that the [malaria](#)

[parasite](#) was introduced into South America by European slave traders bringing infected people from Africa to work as forced laborers in the precious metal mines and sugar cane fields.

More information: “Multiple independent introductions of *Plasmodium falciparum* in South America,” by Erhan Yalcindag et al. *Proceedings of the National Academy of Sciences*, Dec 26 2011.

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